

SENSIBLE FOOD FOR ALL

EDGAR J. SAXON

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SENSIBLE FOOD FOR ALL

in Britain and the Temperate Zones

by

EDGAR J. SAXON

Editor of Health and Life



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The degenerative diseases are due to physiological decay of the organ or parts of the body concerned, and of this decay malnutrition is a chief cause. It is preventable only by so adjusting our ways of life—social, economic, agricultural and international—as to ensure for everyone a diet that will satisfy physiological needs. No expenditure, however vast, on “health services,” housing or physical training can ensure national fitness unless and until these needs are satisfied. Their satisfaction is the primary essential of national health. Their satisfaction is the first principle of good government.

From *The Cheshire Testament*

(see page 124 of this book).



BRITAIN'S TASK:

Fertile Soil to Produce Honest Food for Maximum Health:
Harnessed Sun-Power to Release Men from Mechanical Work

By Way of Introduction

Why This Book is Needed

IN SPITE of the hundreds of books and articles on food that have been published in the last ten or twenty years, there is on all sides much bewilderment as to the essentials of sound nutrition.

This is due partly to the readiness of popular newspapers, both daily and weekly, to allow slick journalists of both sexes to hand out information based not on living experience or careful study but on odds and ends of more or less scientific material, and occasionally to employ doctors or professors whose dogmatism and prejudice are too often equalled by their obvious lack of first-hand knowledge and palate-instinct; partly to the fact that each fragment of knowledge gained by laboratory research tends to be seen out of proportion and to assume 'news value' just because it is new; partly to the personal theories or 'systems' that from time to time achieve a passing notoriety; and partly to the regrettable tendency among advocates of food reform to make sweeping statements or dogmatic assertions unsupported by adequate evidence.

Not only so, but isolated details, like vitamins, or superficial theories, like the caloric-value, are eagerly exploited by commercial interests for the purpose of selling this or that preparation; with the result that the public are cajoled or bewitched by an avalanche of publicity stunts.

So I feel it is justifiable, and should be helpful to many, to present the subject as I have in this book.

I have made use, where necessary, of scientifically ascertained facts without, I hope, incurring the charge of not seeing the wood for the trees. Of those who are likely to read this book some are keenly interested in the more technical aspects of nutrition, but the majority will be looking for clear and dependable information and guidance. I have tried to satisfy both of these.

Living Experience

My own experience, dating from 1905, when I first had my interest aroused, comes into many of the chapters, not, as will be evident, for the purpose of setting up yet another 'system of diet'—which heaven forbid!—but as giving the support of more than thirty years' study, observation, experiment, corres-

pondence and reflection and of some twenty years close contact with the health-problems of men and women who have sought my help, both privately and professionally.

It seems to me self-evident that living experience and unprejudiced observation should always go hand in hand with purely technical laboratory research. Human results, whether achieved in the trial and error of living, or observed in the individual's overcoming of ill-health, or as provided by the habits and health of particular peoples, past and present, are more satisfactory than experiments on animals observed under more or less artificial conditions.

For example, the impressive facts concerning the Hunza people in Northern India to-day and the Chinese nation in past ages, so ably presented by Dr. G. T. Wrench in *The Wheel of Health*,* and the rock-bottom commonsense concerning nutrition and soil-health in Viscount Lymington's *Famine in England*† are such as to dig into the mind of any man or woman capable of putting two and two together, and I beg my readers to read these two vitally important and most enlightening books.

One shows us an amazingly virile and physically tireless people thriving on the unshakeable two-fold basis of sound husbandry and honest food. The other lays bare, with tonic bluntness and unassailable logic, what is so desperately wrong with the cultivated soils of Britain and other over-industrialized countries, and the issues that must be faced if manifold disaster is not to overwhelm that measure of civilization thus far so painfully achieved.

Both of these authors think—if I may so put it—with more than their brains. The purely intellectual—still more the purely scientific—approach to life is inadequate if we are to see things whole.

Reverting to the subject of nutritional experiment, there has been extremely little thus far on groups of men and women over adequate periods of time. At a meeting of the Royal Society a year or two ago a scientist read a paper on nutrition in which he declared that if he could have a thousand English children under his control he would feed them solely on fresh vegetables and raw milk and would thereby prove that the race could be physically regenerated. Possibly he was over-enthusiastic, but it was a sign of the times. Just as it is a sign of the times that a number of eminent doctors are now advocating at least some of the first steps in all-round food reform,

* Daniel, 9s.

† Witherby, 7s. 6d.

a situation that contrasts strongly with the state of medical opinion twenty years ago. Indeed, much if not all of what medical writers now refer to as "the new knowledge in human nutrition achieved by scientific research" had been arrived at by personal experience, native intelligence and shrewd observation on the part of lay and medical pioneers thirty, forty and even more, years ago. Their efforts, however marred in some instances by faulty theory or exaggerated claims, stimulated interest and change of habit in ever-increasing numbers of ordinary people. And this growing enlightenment has had no small part in producing the very welcome, but inexcusably delayed, interest in nutrition displayed in the medical profession to-day.

Soil, Food, Health

Soil, food, health—the health of plants, animals and men—are a seamless living fabric.

This primary datum of planetary life seems to have been an instinctive axiom among the more expert cultivator peoples of the past. Certainly the national culture that has lasted longest without loss of vigour is the Chinese. For more than forty centuries—4,000 years—the great central plain of China has been cultivated on principles of husbandry that bear a close resemblance to those of Inca and pre-Inca Peru on the other side of the world. The physical endurance and moral stability of the Chinese people have literally grown out of this earth-wisdom that their early sages established as the groundwork of social well-being.

But wherever herding, and particularly nomadic herding, has displaced food-growing, or city-finance and expansionist 'imperial' trading have strangled home agriculture, or large-scale single-crop cultivation has been substituted for all-in-mixed farming, disaster has eventually ensued. What happened to the original vigorous and healthy Italian peasant farmers of republican Rome, and to their soil, and finally to the Roman Empire, is now darkly threatening the lands exploited by the white races.* Single-crop wheat-growing in North Africa to feed the impoverished Roman people turned the once fertile province of Libya to a sandy desert, just as single-crop wheat, maize and cotton-growing in the middle States of U.S.A. has led to a vast 'dust-bowl.'

In the Middle Ages the monastic orders originated by St.

*For a full and admirable survey of this aspect of the subject let me refer the reader to *The Restoration of the Peasantries* by G. T. Wrench, M.D. (Daniel, 7s. 6d.)

Benedict were a powerful factor in maintaining husbandry and mixed farming as the basic craft of medieval Christendom.

In Britain, after the Reformation, the Dutch genius in the art and science of cultivation that filtered into Great Britain from Tudor times onwards led to remarkable developments in both method and product. From this time can be dated all that excellent observation, enterprise, enthusiasm, patience and skill in seed-selection, cross-breeding, grafting and the like that have given us our present wide range of culinary and salad vegetables, our choice apples, pears and plums, our innumerable flowering plants and trees, and our deep and remarkably widespread enthusiasm for gardening. Even in the East End of London—this grossly clotted overblown mass of houses and people—can be found miracles of horticulture, backyards ablaze with flowers. The poor man's window-box geraniums are a red flag—not of bloody revolution but of innate sanity.

Professor Stapledon in his far-seeing and truly magnificent book, *The Land Now and To-morrow*, quotes as follows from Trevelyan's work on Queen Anne's reign :

A nation of five and a half million people, of which one-eighth were freehold yeoman farmers, and nearly as many more substantial tenant farmers—a quarter of the population actual farmers . . . it was the interplay of the activity of town and country which gave to Queen Anne's England a fundamental harmony and strength, despite distracting antagonisms of sect and faction. This was an England which had 'the recipe for genius,' and this was an England which also had an exceedingly high co-efficient of land consciousness.

The early eighteenth and the twentieth centuries are separated by far more than a time interval, as we shall see in reviewing what has happened since Queen Anne died; but the two outstanding facts in the above-quoted passage, namely, the *balance* between town and country activities and the nation's *consciousness* of the land, can never be out-of-date as principles of national health of mind and body.

Just What Has Happened

Even among those who have been awakened to various degrees of good sense in matters of food and drink, there is still insufficient realization of precisely what has happened in England during the past 150 years : that is, since the Industrial Revolution led to the greater part of the nation becoming

'townies.' Vague generalizations are often uttered about artificial habits on the one hand and on the other about the carnivorous ways of our ancestors. But there is nothing vague about what has actually happened.

Throughout the history of Britain right down to the latter half of the eighteenth century there were no really large cities or towns as we have them to-day. Both towns-people and country-folk lived on the produce of the surrounding farmlands. They had to, for roads were indifferent and the railway and motor-lorry undreamed of. And though English and Scottish navigators from Elizabethan times onwards were venturing far over strange seas and nosing along distant coasts, no regular trade in imported food had been established except for West Indian molasses and sugar, and this was used in very small amounts compared with modern consumption. Almonds and dried fruits from the Levant, oranges and lemons from Spain and Sicily, tea from China, cocoa-nibs from America, coffee and spices from the East, these amounted to little more than luxuries for the rising merchant class and the wealthier gentry, nobility and land-owners.*

By this time, however, the illegal enclosures of the common lands, which had been for centuries the peasant's stand-by in distress, had gone far, and there was creeping into farming the scale of money-value which was to lead in the nineteenth century to the degradation of both food-value and soil-value, and to the loss of land-consciousness: to farming as an industry instead of a craft and a vocation.

It was the industrial revolution that dawned towards the close of the eighteenth century which led to profound changes in the food-habits and tastes, the housing, outlook and values of the nation, changes which have since become established as the common way of life.

The rapidly growing new centres of mining, smelting, and power-driven manufacture involved ever-increasing concentrations of population unprecedented in British history.

There had always been rich and poor, but now there developed a new kind of poverty, the poverty of the slum and of the rows of back-to-back hovels that housed the new class of worker. The middle-classes, both in manufacture and shop-keeping, grew apace, in standard of living and size of family. The steadily improving sanitary conditions encouraged the survival of increasing numbers of babies in middle-class

* By the middle of the eighteenth century, however, the price of China tea had fallen to a point which led to its use among all but the very poorest.



homes, whereas in previous centuries infant mortality had been extremely heavy. The nation grew rapidly in numbers.

As the railways facilitated internal traffic and transport, and steamships developed overseas trade, so shop-keeping grew. The townsfolk became accustomed to buying food in shops, whereas their forbears had, for the most part, either grown it or reared it, or caught and killed it themselves, or had bought it from those who did. The shopping mind is not the same as the country mind, just as the commercial mind is different from the craftsman mind or the cultivator mind.

Subtle and far-reaching changes in outlook, in taste, in values, were the result. The England of Queen Anne, with its social and cultural roots deep in the soil, became the England of Queen Victoria, with its roots in the mine and its branches in the smoke of furnace and factory. The top-hat matched the chimney-stack, the snowy sugar-cube the white cotton petticoat.

The curious notion that purity is the absence of colour affected both moral conventions and food-standards. Corn-flour, tapioca, polished rice, roller-milled white flour and sparkling white sugar were accepted under this deadly hallucination. In a sense, Mrs. Beeton's cookery book was the shadow of Tennyson's 'lily maid,' and the unbecoming and far from wind-proof bustle of the 90's a reflection of Borwick's baking powder. The heavy breakfast and the starch and sugar tea meal joined hands, so to speak, with whale-bone corsets and high-stooled ledger-keeping to make England constipated, catarrhal and the keeper of the world's morals.

Makeshifts and Medicines

The housewife of town and city was rapidly losing the kitchen lore of her predecessors. Salt and pepper, vinegar and mustard, bought from shops, displaced the old pot-herbs grown in the country-garden. Nothing *tasted of anything* unless it was either sugared or salted. Self-raising flour, with chemicals replacing the traditional and wholesome yeast of home-baking, appeared. Under the increasing pressure and strain of the new industrialism, the housewife became an easy prey for the manufacturer of ready-mixed, time-saving, thought-saving, ready-to-use 'foods'—cake powders, pudding powders, egg powders, blancmange powders, custard powders, sponge-mixtures, factory jams, lemonade crystals, 'temperance beverages,' soluble cocoa, potted meats, condensed milk, branded pickles and sauces, baby-foods, oatmeal stout, malted milk—an ever-multiplying racket of nutritional makeshifts,

predigested invalid foods, processed and patented commodities that spread their blight into every household and that insidiously blurred palate, instinct, sense and good sense, and played neatly and with horrible success into the hands of the new chemical and medicinal industries.

Tea, Sugar and Chocolate

By the middle of the nineteenth century imperialist commerce and international finance had transplanted the tea-plant from China to India, for Clive had omitted to conquer the former country. With the coming of the low-priced Indian product, tea became a teetotal slogan and one of the mainstays of conventional religion and stuffy respectability.

At first this Indian tea was so rough and bitter that it directly and powerfully increased the use of cheap white sugar, the consumption of which, per head, leapt ahead year after year. The sugar-bowl, the tea-pot and the white loaf came to represent 'the poor man's breakfast-table,' while all three became as much a symbol of English life as the flaccid and somnolent lions of Trafalgar Square.

Early in the nineteenth century, three Quaker families saw the commercial possibilities locked up in the tropical cocoa-bean. By removing the 'shell' or bran of the cocoa-nib and by extracting the fat they produced soluble cocoa, and the nation began to get the habit of swallowing in liquid form a food that necessitates chewing and saliva to be properly digested. Later this was to develop into cocoa-flavoured food-beverages, containing eggs, malt, milk, etc., so that to-day the putting of food down the throat without mastication is accepted as a normal procedure, in spite of the fact that it contravenes the first principle of digestion.

Cocoa led to chocolate and chocolate-covered confectionery, for by this means some at least of the fat extracted from the cocoa-bean in the preparation of soluble cocoa could be utilised. Its alluring flavour and rich colour rapidly gained for chocolate a supremacy over all other sweetmeats. Nobody realised—or if they did it made no difference—that this dark brown commodity was half white sugar. The psychology of the chocolate craze deserves a volume to itself. From being at one time an occasional luxury, it has now become the national method of enjoying the film-play and of keeping children quiet, while a large 'garden-city' has been erected on the profits of tickling the palate and destroying genuine zest for food by the habit of 'betweens.'

So madly has the chocolate racket grown that the craziest appeals and the shoddiest pseudo-scientific arguments are now used in the effort to get everyone to eat more of it. Publicity includes, at one end, glamorous suggestions of this or that brand of chocolate facilitating romantic situations and, at the other end, 'scientific' assertions to the effect that between meals the sugar in the blood falls too low and needs replenishing with chocolate. This gigantic and unscrupulous advertising of chocolate links up with the ridiculous 'night-starvation' notion that has been sedulously exploited by several manufacturers of food-beverages based on dried milk and desiccated malt extract with, in some cases, eggs, chocolate or cocoa added. Hospital experiments were gravely cited as supporting the suggestion that during sleep the body is using up precious energy; or that when one of these liquid mixtures is taken at bedtime it reduces the amount of CO_2 (carbon dioxide: a waste-product of nutrition) in the blood; or it is asserted that a sleeping child's turns during the night amount to a distance of forty yards, thus exhausting the poor youngster before he wakes and clamours for his teddy-bear.

Although most people pretend to laugh at such stunts, these pay the manufacturers, which proves the cumulative power of repetition and suggestion.

One can but point out that during sound sleep, the body is recuperating its energies—unless indeed the whole elaborate network of nerves, glands and digestive process has been set going by putting food into the stomach on going to bed!

As for CO_2 in the blood, it is there on its way towards exit from the body in the exhaled breath from the lungs; but whenever digestion is started the digestive organs begin to bring nutriment into the blood and in so doing check the excretory process so far as the cells and blood are concerned.

The basic absurdity of chocolate between meals and of foody drinks at bedtime is that, except for the poorest people, the day's meals have in most cases been over-balanced with nutritious as distinct from purifying ingredients. Hence such propaganda only makes matters worse, whatever the immediately stimulating effects may be.

Stoking the Stomach

The country household of Charles the Second's time drank home-brewed beer and ate two meals a day. By 1860, six generations later, every middle-class family in England was sitting down to eat four substantial meals a day and drinking sugared Indian tea almost as often. The English and Scottish

tea-meal assumed massive proportions, and it was a net extra to the habits of preceding centuries. The British breakfast also developed into a serious affair, the Scots taking to bacon and the English to sugared porridge.

The mechanical science of the Victorian age interpreted human nutrition in terms of the blast-furnace and the combustion-engine. Strength and energy depended on abundance of fuel, so the Englishman stoked his stomach while his wife anxiously strove to give the children 'plenty of good nourishing food.' And since by this time a large proportion of food was processed, de-germinated, purified, concentrated and de-vitalised, as above related, the old-time sudden fevers and apoplexies, due for the most part to excess of beer and meat and insanitary conditions, gave place increasingly to slowly creeping disorders: to indigestion, gastric ulcer, rheumatism, constipation, catarrh, anæmia, arthritis, obesity, diabetes, kidney disease, cancer and fatty degeneration of the heart. The chemist's shop, with its palliative drugs and advertised nostrums, reaped the harvest. The ancient herbal lore of the countryside was submerged beneath the rising tide of 'medical science' which, in spite of the integrity of many individual physicians, became the imposing façade to a vast and sinister backyard where manufacturers of new drugs and vaccines have built-up powerful commercial interests.

Spectacular Technical Advances

The facts marshalled thus far in these pages make a dark picture, but they do not constitute the whole picture. Over against the far-spreading decay of tastes and values, of sound tradition and common sense, there have been many substantial and even dazzling achievements.

Although what is called the improved standard of living includes much that is worthless or even pernicious, it also includes shorter working hours, improved working conditions, great advances in personal and public cleanliness, innumerable mechanical inventions that have, among other things, given the townsman rapid access to the open country, a vast expansion of printing that, while it has been a means of stultifying intelligence, has also made it possible for hungry minds to gain access to the world's knowledge and wisdom, immense developments in communication and in cultural activities that have enlarged human consciousness of the world and its history. And although manufacturing and big business have been dominated by the principle of 'will it sell?' among a jungle of trumpery there are now in all homes except

the poorest a hundred things that save labour or increase comfort.

Above all, technical invention has made it possible, if not profitable, to produce all manner of things in super-abundance through the tireless labour of machines.

But this spectacular technical advance in production has led to a gigantic two-fold anomaly: an insoluble problem of unemployment and an inability of the nation to buy the full product of its machines. For behind the scientific and technical advance and the commercial enterprise and often ruthless exploitation that has characterized this new England of 1770 onwards, an ever more powerful interest has from the first imposed its own long-term policy. That interest grew in power in exact ratio to the development of banking technique; the legalizing of that technique by successive statutes and charters eventually made the money-monopoly world-ruler.

Power through Money

The usurer is no modern phenomenon. But the private money-dealer and money lender, rightly regarded with aversion all down history, whether he were Jew or Gentile, Aryan or Slav, achieved a still more sinister influence and with it high respectability when in 1694 a group of London merchants obtained a charter to establish a private business called the Bank of England. It secured the position of money-lender to the government; the security for its loans was the real credit of the nation; the security for payment of interest was taxation. This passing of traditional control from the Crown to the Bank was to have incalculable consequences, for it has proved to be the key to such power, ultimately, as no dynastic tyrant had ever dreamed of.

The coming of the Industrial Revolution put the Banking Monopoly literally on the throne. It was completely to its interest to stimulate and batten upon the rapidly advancing use of solar energy in coal, oil and electricity. For while ancient and medieval usury consisted in the cornering and lending of gold, the banker's usury became the costless creation of financial credit and the levying upon the entire community, in all its rapidly developing activities, of the payment of interest on loans thus created. As long as industry and foreign trade were expanding apace nobody saw the snag. But there is an inherent limit to expansion. The present century has seen the industrialization of vast areas of the world. The Victorian era of 'limitless' prosperity and naïve 'progress' has led straight through to world-tension due to the fight for shrinking markets.

The Ultimate Responsibility

It must be emphasized, if one is to be intellectually honest, that behind the drive of capitalistic expansion was the super-imposed but carefully screened policy of this fully developed and eventually high centralized credit-monopoly. The *ultimate* guilt lies there for the ravaging single-cropping of the virgin-soils of America, Australia, South Africa and Nyasaland and for what has occurred and is now occurring there; for the pseudo-scientific and ultimately disastrous exploitation of the by-products of the chemical and armament industries in the form of stimulating but essentially destructive chemical manures; for the increasing disease among cattle and poultry through impoverished soil, artificial feeding and forced production of milk and eggs; for the vast consumption of Empire tea, of processed rice from Burma and Java, of cornflour from America, of refined sugar from Mauritius, the West Indies and the East; for the huge publicity campaigns for the sale of packeted and patented substitutes for fresh whole food; for the equally pernicious medicinal drug racket; for the decay of the English countryside; and for the frustration, indifference, despair, confusion, malnutrition and ill-health that are everywhere about us to-day.

These extremely grave developments demand an immediate and bloodless revolution, or rather restoration, in national consciousness, national aim and national policy. But while the implementing of such a restoration lies with those whom we as citizens place in authority, it is only by a national awakening to these radical facts and issues that the necessary pressure can be exerted.

Grounds for Hope

Fortunately there are some grounds for hope. The nature and extent of soil exhaustion are already realized by many responsible individuals in England, U.S.A. and New Zealand. The hitherto hidden side of the Banking Monopoly is no longer a secret to thousands of intelligent people and to some scores of influential men. The threat to our lovely countryside by ribbon-development and the like has become 'news'. The physical condition and inadequate spending power of a large proportion of the population have been brought into the daylight by Sir John Orr in his *Food, Health and Income*.^{*} English farmers are becoming actively rebellious. They know they can grow abundance of fresh food, but they must be able to sell it, and they cannot sell it unless the nation can buy it.

^{*} Macmillan, 1936. 2s. 6d.

Within the National Farmers Union there is now a spearhead movement, The Farmers' Action Council,* whose aim is to get the Compensated Price Policy for agriculture placed on the Statute Book of Great Britain: in other words, a financial reform that would ensure that the people will be able to buy all the food that expert farming can produce without borrowing money from anyone and without taxing anybody.

Alongside these signs of awakening intelligence, welcome publicity has been given in the Press to the facts established by Sir Albert Howard and by followers of the late Rudolf Steiner as to what can be and has been done to banish animal- and plant-diseases, reduce pests and improve the quality of cultivated produce—not by intensified attacks on pests and viruses and germs, but by adapting and improving the age-long methods of true husbandry. Just as in 'nature-cure' thought the emphasis is placed on right nutrition, so in this re-discovery and development of traditional wisdom the emphasis is on the health of the living soil. For the soil is not a mixture of inert chemical compounds at the mercy of 'disease germs': it is our planet's living integument. Healthy soil is the essential basis for good food, healthy animals and sound men and women, sound in mind as well as body. Disease arises only when men mismanage their environment or themselves.

I beg the reader not to read what has been said above and leave it to the farmers or the statesmen. Everyone who has a kitchen-garden, an allotment or a small holding can take a hand, however obscure, in the supreme task of regenerating the soil of England. Articles on ways and means have appeared in *Health and Life*, and among the wide literature now available, I may refer to my own *Good Food from Healthy Soil*, written for the amateur gardener.

Money, Work and Poverty

Inextricably bound up in the whole question, I must insist, is that strange thing Money, for it is the sole connecting link between anything that is grown or made and the people who want or need that thing. There are some who would scrap the total technical achievements of the past 150 years and reinstate a medieval economy, so deeply are they in revolt against the many hideous things in the over-industrialized societies of to-day. There are others who argue that the majority are poor because the minority are rich.

Yet the electric dynamo, magnificent achievement as it is,

*Hon. Sec.: J. Howard Jones, Jude Farm, Kingsley, Borden, Hants.



is in principle the same as the first labour-saving device made in far back ages. The full use of electrical energy or Sun-Power cannot but displace human energy. But as long as we insist that work is the only title to money we shall be driven deeper and deeper into distress and muddle by our refusal to be intelligent about power-driven machines. What must be done is to adjust the creation and distribution of money on the basis of *all that is produced*. Only so can we master the machine and make it our tireless slave. Only so can our pitiful army of unemployed take their place in the nation's life. Only so will men be able to choose their work, for chosen work alone develops what is in us: imposed work is virtually serfdom.

This issue is not the popular one of 'Right' versus 'Left.' The deeply entrenched monopoly that alone creates and controls the amount of money available at any time over-rides all ideologies and indeed uses them to maintain its power. "Give me control of a nation's financial credit," said a banker 150 years ago, "and I care not who makes its laws."

Large numbers in what are, with unconscious irony, called the Right Wing regard the working class and the unemployed with revolting contempt and suspicion, while most of those who are called the brains of the Left Wing appear to have nothing brighter to offer than schemes which would flatten out existing money-incomes by taxation and stultify the national genius by nationalizing agriculture and industry, leaving orthodox financial principles still in the saddle.

That there is far more grinding poverty in Great Britain than most middle-class people realize is due not so much to the existence of a small wealthy class but to the fact that the total amount of money incomes bears no relation whatever to the amazing increase in production achieved through the control of non-human energy. The inevitable result is that, as Sir John Orr has proved, 4,500,000 out of Britain's population have only 4s. per head to spend each week on food; another 9,000,000 only 6s.; and yet another 9,000,000 only 8s.—no less than 22½ million men, women and children in Great Britain have only from 7d. to 1s. 2d. a day for food (1928).

That is to say, half this great nation endures this scandalous inability to buy good food, while fishing fleets are strictly controlled lest they bring in more than can be sold (that is, bought), farmers are fined if they grow more than a given quantity of potatoes, millions of good acres are going back to grass and worse than grass, and home-grown vegetables, fruit and dairy products have to be described as "among the more expensive foods" (written in 1929).

Such facts haunt me day and night. To every other English, Scottish, Welsh person this book can be offered only with apologies, or as merely pointing to better ways of spending their artificially restricted spending-power.

This utterly needless money-poverty drives these millions of people to fill their bellies with cheap de-vitalized white bread in place of honest wheaten bread, with cheap margarine instead of honest English butter, with cheap concentrated 'pure' white sugar, with the cheapest cuts of chilled imported carcasses, with cheap jam in place of sweet ripe fruit, and perhaps fish and chips (the only honest items in this list) as a treat. Little wonder that to buck themselves up they drink freely of cheap, but heavily taxed, Empire tea that their ancestors of Elizabeth's or Anne's time would have spat out of their mouths.

It is true that if those same 22,500,000 of my countrymen knew the elementary facts about nutrition set out in the following pages they could spend less on deficiency foods and a little more on fresh vegetables, milk, eggs and cheese. But that does not diminish by one jot the scandal of their deprivation.

So that even though the very title of this book savours, under present conditions, of falsity, I can at least feel that it is a true title for the remainder of the nation whose purchasing power is more, or even much more, than that of the derelict majority—employed or unemployed—referred to above.

Of those better-off and well-off citizens—skilled workers, technicians, shop-keepers, clerks, salaried folk and professionals—many are now awake to the basic importance of sound nutrition, though often misled or bewildered by one-sided theories or pompous pronouncements. But the majority still ignorantly assume that modern food is traditional English food and therefore regard all talk or thought about better ways as just fad and fancy. They accept the much-advertised notion that because modern people live longer than their ancestors they are healthier, when the truth is that they are more efficiently patched up. Plagues due to filth and neglect have been to a large extent banished by external sanitation, but the insidious, creeping, slow-killing disorders have increased and continue to do so.

Christ's saying as to cleansing the outside of the cup is exactly to the point. Sanitation has to a large extent cleansed the outside of the community's cup, but impoverished food and popularized drugs have fouled the inside.

Instinct, Palate, Tradition

I can but declare that it is almost impossible for anyone brought up in the present era to depend on instinct, on palate, on tradition.

Instinct has been effectually suppressed or overlaid by some five generations of town and city habits.

Palate has been confused, dulled and degraded by 150 years of food sophistication and processing and by at least fifty years of ever intensifying and misleading publicity for time-saving substitutes, palate-ticklers and pre-digested or factory-compounded mixtures.

As for tradition—the rich and in the main wholesome food-tradition of the countryside from Charles I to Queen Anne, to go no further back in time, with its free use of fresh dairy products, whole grains, garden vegetables and pot-herbs, has been destroyed. In its place we have the muddled product of selling stunts that tell us this is ‘good’ or that is ‘best,’ or that strive alternately to coax, flatter or hypnotize us, using anything that comes to hand—vitamins, germs, constipation, night-starvation, financial anxiety, domestic strife, strip-stories by eminent novelists, pictures of puddings, portraits of film-stars, rhyming slogans, recommendations by ten or twenty thousand doctors—in order to make us buy and put down our throats this, that or the other substitute for the fresh products of the living earth and of man’s experience in husbandry and herding through the ages.

So lost are the bulk of urban populations to-day from the ancient roots, so blind to the things that have happened to food and drink, to taste and tradition, in the last 150 years, so ready to swallow any skilfully advertised dope to palliate the end-results of faulty nutrition, that we *must* get down to the facts about food, and from these the truth about nutrition.

Not that it is only towns-folk who have been brought to this pass. The creeping fungus of ignorance and publicity-conditioned credulity, the bane of the selling campaign, the superficial outlook and debased values of the town—these have spread into the remotest villages, into the wilds of Wales and the highlands of Scotland.

The countryfolk have to a large extent substituted condensed milk, roller-milled white flour, factory sugar and jam, imported cheese, butter and meat, canned fish and cheap Indian tea for their one-time local produce, for home-baked wheaten bread and oatcake, honey from the hive, eggs, cheese, butter and raw milk from the farm, fresh fish from river and sea, while a so-called national health insurance provides them

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**SMASH
THAT
COLD**

**HOW TO
THINK
IN TEN
EASY
LESSONS**



with futile palliatives for the sickness that inevitably afflicts them as the result of these departures from sanity.

Sub-Health and Ill-Health

Not least among the dreadful results of the total influences and happenings reviewed in the foregoing and none-too-hot pages is the quite general acceptance of sub-health as good health. Colds, catarrh, constipation ('of course I take a laxative' smiles the bright young lady in the advertisement), rheumatism, indigestion, headaches, flatulence, inflamed tonsils, dull skins, unhealthy teeth, defective sight—these are quite commonly regarded as unavoidable. *They are one and all positive proof of the lowered quality of bodily condition that precedes their appearance.* That preceding condition is called health: it is sub-health. No *healthy* person can suddenly develop or catch an ailment or a disease. Sub-health in some degree, greater or less, always precedes ill-health.

When something so central as bodily appearance and aroma ceases to be a recognized value, when the average skin, eyes, hair and bearing of to-day are accepted as normal, it is evidence of decay and disintegration.

But here also there are signs of a re-awakening. Many a modern girl and young woman is a prophecy of renaissance—with her well cared-for hair bare to the wind, her freely moving limbs, her sensible food and drink, her love of swimming and other sports, her easy bearing and smiling candour. It is now for the other sex to develop a parallel renewal of quality and appearance.

For the renewal of the nation must come equally from the creative centre and from the controlling circumference—from an individual self-respect and aspiration and from a re-shaping of the social and financial environment.

Things I have Seen

The author of this book is no headlong young journalist writing up malnutrition out of recent history. For more than forty years and with slowly increasing understanding I have with pen and voice, within the limits imposed by personal circumstance and medical, official and public prejudice, striven to sow the seeds of a re-birth of primary human values centred in health, which is wholeness—the wholeness of unfolding human nature rooted in healthy soil and sound nutrition. I have seen heartening advances in many directions. I have seen the science of nutrition developing throughout the world. I have seen welcome changes in medical thought and practice. I have seen a great hunger for the open country

taking various forms. I have seen welcome improvements in public catering and the development of a new type of food factory. I have seen the massive Victorian breakfast yield slowly!—even if only before the import of American breakfast foods. I have seen skirts become shorter (and then longer again), arms and necks and legs and feet exposed to light and air, Eton crops recovering from their absurdity and becoming thick heads of beautiful hair; I have seen the high collar displaced by the much tighter double-locked soft variety; but I have also seen (and worn) well-tailored shorts and well-designed open shirts. I have seen nudity and near-nudity popularized in illustrated papers and practised by courageous zealots. I have seen how health-propaganda inevitably attracts the neurotic and the erotic as camp-followers to the genuine health-seekers. And I have seen a few really splendid-looking men and women and many lovely children. And if I sometimes find myself chuckling over the manifest ignorance or pompous prejudices of this or that professor of physiology or chair of dietetics, it is I hope forgivable under the circumstances.

Through Facts to Freedom

This introduction has run to greater length than was at first intended, yet there is nothing in it I can honestly wish to delete. It is so necessary to see nutrition against the background of what has happened. But I will bring it to an end by assuring the reader, whether such be the Minister of Health or the wife of an underpaid farm-worker, the President of the British Medical Association or one of those lady journalists who advise worried girls on the secret of glamour, that in spite of all the conflicting opinions of 'experts' and in spite of all the grim developments that I have described, it is possible, through utilizing such information as will be found in the following pages, gradually to release taste, smell and sight so that one moves away from the facts of nutrition and eats and drinks with zest and good sense, and with continuing benefit. This I know, not only because I have proved it in myself, but because thousands of others have done so and are doing so, and because it is in line with all that is now known of the history of mankind.

I can assure the reader that when I prepare a meal, as I very often do, I do not anxiously scan tables of food-values or somebody's chart of 'incompatibles'; nor when I am enjoying the meal do I worry myself as to whether it is going to be digested. Having established the basic principles, one is free to relish each meal as it comes, whether it be the simplest of daily fare or an occasional festive spread.

I.—A Straight Tip from Nature

LET us begin at the beginning of a person's life, with milk, human milk, and set down what is found in milk when it is carefully analysed. In this fluid which the mother's body makes for the feeding of a baby we must surely find reliable information as to 'Nature's' balance of food elements.

What, then, does human milk contain? Leaving out decimal figures for the benefit of readers who would be confused by them, the result is: that in every 100 parts of milk there are

1½ parts of protein
3½ parts of fat,
6½ parts of sugar,
½ part of mineral salts,
88 parts of water.

PROTEIN is the name given to a complex substance found in all living creatures—plants, animals and men. Plants make their own protein, but animals and men, so far as is known, do not, so they have to get it in their food. And there it is in the complete food that 'Nature' prepares for the small human creature.

The FAT in milk is called cream. Under the microscope it is seen to consist of small globules of fat. Fat as such is put to various uses in the human body. One is the protection of the muscles and other tissues; another is as a source of warmth and energy; and another is the repair and maintenance of nerves.

The SUGAR in milk is there already! It is not the pure white crystal sugar sold by the grocer, but—note the amount of water—very diluted. Plants make sugar out of carbon, hydrogen and oxygen, a remarkable achievement. But animals and men cannot do this, so they need to get sugar in food. In all ripe fruits there is sugar. In cultivated grains (wheat, rice, oats, etc.) there is much starch, and this can be changed into sugar in the human digestion.

The MINERAL SALTS in human milk, although so small in amount, are essential. Here are the results of analysis. The smallness of amount can be judged by the fact that these figures represent the amount of each particular mineral in *one thousand* parts of milk *after all the water has been evaporated*, and we have already seen that milk is 88 parts water. I again omit decimal figures for simplicity.

Sodium	.	.	.	3	
Calcium	.	.	.	6	
Magnesium	.	.	.	$\frac{3}{4}$	
Iron	.	.	.	$\frac{7}{100}$	so much less than 1 part that a terrifying fraction must be used;

Potassium	.	.	.	12	
Phosphorus	.	.	.	8	
Sulphur	.	.	.	$\frac{1}{3}$	
Chlorine	.	.	.	6	
Silicon	.	.	.	$\frac{7}{100}$	

Other minerals present in food and in the human body, but in much smaller amounts than the above, include fluorine, iodine, copper, zinc, barium, silica, aluminium and manganese.

Only some 36 parts in one thousand parts of *dried* milk is mineral matter, yet these minerals, which the human mother needs to get from her food, which the cow gets from grass and which plants get from the earth, are essential if the protein, the fat and the sugar are to be of any use to the baby.

The first thing to notice about the make-up of 'Nature's' food for babies is the large proportion of water. It looks as though our adult food should be such as contains much water; in short, it should not be unduly concentrated. If we can arrange our meals so that we get the necessary protein, fat and sugar (or starch for converting into sugar) and at the same time plenty of water (in the food we eat) and in something approaching the proportions found in human milk, we should be on right lines.

No starting off with a theory here and then trying to find evidence to support it, as too often happens in food-books, but going straight to 'Nature' for a straight tip.

Why should a baby's natural food contain so much water? Presumably because its body is actually remarkably watery! That is to say, the extremely small spots of living matter called 'cells' of which every part of the body is built up are largely water, and for the most part live in a watery fluid called lymph. It is only the bones and teeth that are definitely hard—though even these contain *some* water—hard because their cells are packed tightly.

But a baby is not an adult. True. But its food has to provide for growth, which does not apply to adults. On the other hand, it is not subject to the nervous wear and tear of adult life. So balancing one fact against the other, we can still feel pretty safe in taking human milk as our standard of food values and their proportion.

And, finally, mother's milk is *not cooked*.

2.—A Tip from the Teeth

JUST as we went straight to mother's milk for information about food-values, we will now take a good look at teeth.

"Teething" is so often accompanied by upset that there may be some small excuse for the very common failure of parents to respond to their first appearance with wonder and intelligence.

For, when you think about it, it is astounding that these hard white enamelled structures bud like flowers in a baby's mouth. What complex processes of organization, supplies and construction their budding involves! Out of materials in the baby's blood, which are derived from its mother's milk (or from cows' or goats' milk if its mother cannot or will not feed it), the teeth are built.

It is known what they are made of, but what is it builds them? "The baby's body does it." Really! Then the baby's body must have built itself in the womb—which doesn't make sense. "Nature does it." Charmingly vague word, which enables us to evade so many awkward questions, for it means everything we can see, hear, taste, touch or smell, from the money spider to the starry sky, as well as the way everything behaves. "Life does it." Again, an evasion, for life is a characteristic of plants, animals and men, but not something that we can isolate from living creatures and say—"That is life." Perhaps the baby's unconscious mind does it.

I will not apologize for suddenly plunging the reader into such depths, for whatever we look at directly, with open eyes and unprejudiced mind, has this strange capacity of opening a gap in the mind, and no matter how much is found out about the way living things are built, what it is that does the building and maintains the type of every living organism eludes us.

But we can know three things about teeth, each of which is of the greatest practical value.

The first is that their hard outer layers are made very largely of calcium phosphate. And calcium and phosphorus, as we saw in the previous chapter, are two of the minerals in mother's milk.

The second is that the soft interior of each tooth is in full communication with the circulating blood.

The third is that the shape of the teeth gives a straight tip as to the sort of food they are designed to deal with: the front teeth for biting into food that needs to be bitten into; the side

teeth for crushing and pulping food that needs to be crushed and pulped.

The first and second of these facts about teeth speak plainly enough. Among other things, they say very clearly that if seven out of ten children in Britain to-day have some degree of dental decay, as they have, then either their mother's milk has been, or their daily food is, deficient in either calcium or phosphorus, quite apart from other factors in dental decay; or there are disturbing conditions which hinder the assimilation of these minerals.

But the third fact gives us the special tip we are looking for. It is a tip to us to eat food that needs biting into and reducing to a pulp. Yet how does this square up with the last chapter's "Straight Tip" from mother's milk, which was that the great dilution of the nourishment in milk suggests that, after allowing for adult ways of life, our food should not be unduly concentrated? Are not watery foods sloppy and mushy? Yes, some are, but others are not. We have to use first our front teeth and then our side teeth when eating an apple or a stick of celery, *yet apples and celery are even more watery than milk*. But we do not have to use either our front teeth or our side teeth to eat (or rather swallow) cornflour blancmange, sponge cake, or a cup of cocoa.

But there are plenty of other foods that have to be bitten into and then crushed or pulped that are either less watery (that is, they are *rather* more concentrated) than milk—such as meat, fish, eggs, cottage cheese and bread; or are very concentrated indeed (that is, contain very little water)—such as ordinary cheese, nuts, biscuits, chocolate, and dried fruits in their dry state; or that contain no water at all—such as sugar, as bought.

So, still keeping strictly to what we can learn from looking and finding out, and not starting with any theory, however attractive, but beginning with what mother's milk consists of and what a child's teeth are obviously designed to do, we are safe in concluding that the foods that should bulk largest in our meals are *watery foods that call the teeth into action*; and further, that the more concentrated any other kind of food may be, the more moderate should be our consumption of it, whether it demands much chewing or not.

This is the second step in our progress towards an understanding of sensible food. There are, naturally, other considerations, which I will deal with step by step.

3.—What about Protein

RECALLING the facts about the contents of human milk given in the first chapter, it is clear that this substance that chemists and biologists call protein is essential in our food. This is due to the single fact that it is built round nitrogen, in a complicated pattern involving hydrogen, carbon, oxygen and sulphur. Nitrogen, in its single state of bachelordom, is an invisible gas in the atmosphere; but protein is not a gas, though too much protein can lead, amongst other things, to a very unpleasant kind of gas rumbling in the human belly! How, then, are these gaseous elements turned into a solid?

There were no elaborate chemical laboratories in those far-back ages when 'life' began to stir in the primeval oceans of our earth. Indeed, this problem, on whose solution the vast flowering of all the living creatures that we know would seem to have depended, was: Just how can the nitrogen gas in the air be captured by the sea? Once that problem was solved, plants did the rest. Plants get their nitrogen from nitrates and decayed matter in the soil, in which nitrogen has been captured by some other element. There are some plants (the family of vetches, clovers, peas and beans) which have made double-sure by inducing, in some unaccountable way, a particular type of bacteria to form colonies on their roots, and there to capture, and supply to the plant, nitrogen derived from the atmosphere. Is that not cute?

Plants, with the aid of sunlight and water, build up protein. This circulates in plant-blood, called sap, and is necessary for that remarkable substance chlorophyll, which makes the leaves green; and finally, to make sure that life shall go on, it is packed very tightly and generously into the seed. Consequently, nut kernels, peas, beans, lentils, grains of wheat, barley, maize, rice and other cultivated grasses are all relatively rich in protein, because these are all seeds.*

But these are not the only sources of protein available to us. For not only is there a little protein—a very little indeed compared with edible seeds—in all leaves, roots, stems and fruits, but the milk of cows, goats and other mammalian animals contains it, in similar amount to that in human milk. Consequently, when the watery part of milk is taken out in order to make cheese, from the simplest home-made curd cheese at one end to the most sophisticated extremes of decaying Gor-

* I am aware of the fact that, strictly speaking, these foods are packets of food-material made ready for the embryo to feed on when it begins to develop. But the practical point is unaffected.

gonzola and Stilton at the unwholesome other end (not udder end, for that, one remembers, is where animal milk comes from), the solid ingredients, including most of the protein, are automatically greatly concentrated. There are about $1\frac{1}{2}$ parts of protein in every 100 parts of human milk (as we have seen), but there are from 25 to 40 parts of protein in cheese, according to how much water it retains. Parmesan, which has the least water and is so hard that it has to be powdered before it can be used, supplies the 40, while Cheddar, Cheshire, Gruyère, Dutch and Canadian answer to the figure of 25.

Birds' eggs, and therefore the eggs of chickens, turkeys, ducks, plovers and geese, consist of food materials in readiness for feeding the embryo chick and therefore contain protein, but since an egg consists of a fair amount of water (among other things), the protein is about 15 parts to 100.

Finally, the muscles and organs of fishes and animals contain protein, which was derived solely from these creatures' food—either plants or other animals or fishes. The *lean* of meat and fish contains, before being cooked, from 20 to 25 parts in 100 parts. But the nitrogen in the juices or 'gravy' of meat, including meat extracts and 'essences'—since these are used-up material which was on its way out of the animal's body when it was killed—has fulfilled its purpose: that is, gravy and meat extracts are largely made up of dead cells and the end-products of nutritional change (metabolism), the exact opposite of living protein.

[A simple guide to the amounts of protein in the principal foods will be found on page 105.]

4.—Sugar and a Strange Superstition

To talk sense about sugar to-day is to come up against a strange superstition; and to attack a superstition is to evoke a veritable avalanche of emotional resistance. Yet, unlike many superstitions, this one has its roots in no far-back primitive fear or fancy: it is barely a hundred and fifty years old.

It is true that crystals were made from the juice of sugar-canes in India and China as early as 800 B.C., and that such sugar was an article of trade between Egypt and England, via Venice, all through the Middle Ages. It was used partly as an occasional luxury or 'sweetmeat' and partly for mixing with the medicines that Moorish doctors popularized throughout Christendom in the days of Charlemagne. But it is only since the eighteenth century that extracted sugar has changed from a medicine-sweetener and occasional palate-tickler to a so-called staple food.

By 1853 the amount of extracted sugar produced throughout the world was 1,423,000 tons, by 1871 it was 2,786,000 tons, by 1886 it had nearly doubled this enormous figure and stood at 5,187,000 tons. In the fifty years that have since elapsed, the total has still further increased, out of all proportion to the increase in population.

In 1902 every man, woman and child in Great Britain consumed an average of 78 lbs., in 1920 90 lbs. To-day it is probably 100 lbs., especially when the enormously increased consumption of chocolate and toffee is remembered; for chocolate, as sold, is nearly half sugar.

Now 100 lbs. a year is roughly 2 lbs. a week, as much sugar as there is in about 18 lbs. of apples or 20 lbs. of beetroot. The equivalent of this artificially extracted and refined sugar in terms of natural diluted sugar would be 3 *lbs.* of beetroot every *day of the year!*

Turning now to the facts about human milk, we find that the sugar-needs of babies are met by $6\frac{1}{2}$ parts of sugar in a hundred parts of milk. The raw juice of the sugar-cane contains about nineteen parts in every hundred—three times as much. But sugar as bought in the shops is over ninety parts sugar, with less than ten parts of moisture. Ponder this fact:

Human milk has $6\frac{1}{2}$ parts of sugar in 100.

Bought sugar has 93 parts of sugar in 100.

There is not only this tremendous concentration, but in order to produce sugar in this form the other elements, including the essential mineral salts, in cane-juice have to be refined

away. (As for beet sugar, the semi-completed product has so objectionable an odour and taste that powerful chemicals must be used to get rid of them.) Such sugar is pure: so pure—that is, so free from everything but sugar—that it is, when consumed in the customary quantity, a grave danger to human health. Why so?

The answer is in human milk. In the first chapter it was argued that since the complete food spontaneously elaborated in the mother's body for her child is highly diluted—only some 12 parts of nutriment to 88 parts of water—it looks as though the human body, which is known to be quite three-fifths water in spite of the relatively solid bones, needs its food-materials similarly diluted. It was pointed out that this does not mean living on slops, but that the bulk of our food should be such as itself contains much water: crisp as apples or lettuces, hard as celery, firm as baked potatoes or wholewheat bread. It was argued that concentrated foods—that is, those containing much less water than milk or practically no water at all—need to be used in great moderation.

Now the figures and facts given above prove that there could scarcely be a more concentrated food than the sugar of commerce. And when, in addition, it is practically devoid of minerals (which we have already seen to be present in human milk), and its vitamins have long since vanished into thin air, it ranks as the worst 'deficiency food' of modern times.

How then, should we satisfy our need for sugar?

Consider fresh ripe fruits. Analysis reveals that these, with the exception of bananas and olives, contain, on a general average, six parts of sugar in every hundred parts: a truly remarkable resemblance to human milk so far as *sugar* is concerned. Of course some fruits contain more and some less. Six is the average. Grapes have 15 or 16, loganberries 3.

Could there be a plainer tip?

In this proportion and in this dilution, sugar is easily dealt with in the body. All sugars—and all starches, which I will deal with in the next chapter—are elaborate combinations of carbon, oxygen and hydrogen, C, H and O. When by means of complex enzymes, produced *by* the body, sugars are broken down or split up and the energy thus released rendered available, the whole combination can finally be thrown off as CO₂ (carbonic acid gas in the expelled breath) and H₂O (water). Beautifully simple, put thus, but involving a most intricate series of happenings, and depending for success on numerous factors having to do with our ways of living.

Now the habitual heavy consumption of concentrated and refined pure sugar renders that simple solution almost impossible of achievement: for complicating the problem is the very common shortage of oxygen owing to stale air or insufficient physical exertion or shallow breathing; the equally common neglect of water, *as such*; the many nervous strains we place upon ourselves; and the reckless over-consumption of concentrated foods generally (such as bread, biscuits, cheese, meat, nuts, honey and even dried fruits *in their dry state*). For all this means that the complete oxidation of the CHO mixture called sugar is difficult to accomplish.

The result is confusion. The body-cells have to do **WHAT THEY CAN**. Here is one example of what very frequently happens.

The complicated CHO structure of sugar is arrested in the process of splitting up and stops at $C_2H_2O_4$, that is, oxalic acid. This dangerous irritant must be dealt with somehow. There is a possibility of getting it out through the kidneys in the urine by turning it into calcium oxalate crystals. That means taking calcium from the blood or the lymph, or from the cells, together with three times as much O and twice as much H—in other words, oxygen and water. This is the result:



If these calcium oxalate crystals are small enough to get out quickly through the kidneys, they can be discerned in urine. If not, they either clump together into clusters which lead on to stone or calculus, or they are deposited in the tissues, with, eventually, irritation, whose symptoms are described as rheumatism, or neuritis, or something else.

And now, after this sad story of everyday life as it is lived to-day, what is the strange superstition referred to in the title of this chapter?

It is the belief, still so distressingly strengthened by medical authority, that sugar as sold by the pound is an essential foodstuff.

The plain incontrovertible truth is that it is perfectly easy (except for poverty-stricken people) to get all the sugar we need by eating every day some ripe uncooked fruit or a moderate amount of stone-milled flour in the form of bread or biscuit or both; and honey sometimes. The ripe fruit supplies diluted 'living' sugar; the honest bread supplies the starch which, other things being equal, our bodies readily convert into sugar. This quite apart from the excellent starch of

potatoes cooked in the good old-fashioned way, that is, in their jackets, and the diluted sugar in carrots, beetroots, etc.

The rational use of extracted sugar—preferably the excellent pale Barbados variety—is as an ingredient in steamed wholemeal puddings, or in such occasional luxuries as cakes made with stone-ground flour, or for sweetening lightly-cooked windfalls of good quality apples and pears, since these are better used thus than wasted.

Another use may well come if and when English life again establishes a background of a prosperous and fertile countryside.* I refer to the old-fashioned home-made nettle-beer and to home-made wines and cordials based on fruits and herbs.

As for the 'economy' of turning vast quantities of more or less unripe and inferior fruit into jam, the time will soon come, I hope and pray, when it will be made financially practicable and profitable for English fruit-growers to cultivate for dessert quality rather than for jam-factories. Any real surplus of such high-grade fruit could be vacuum-bottled or put into improved forms of cold-storage, or its living juices bottled by either the Shloer or the Matzka techniques, which have been proved to cause no change of flavour and no loss of the nutritional properties of the fresh fruit.

*See *The Land, Now and To-morrow*, by R. S. Stapledon. (Faber & Faber, 15s.) A magnificent book that can be got from lending libraries if the price is too high.

5.—The Truth about Starch

MANY people have now become what Americans would call starch-conscious. That is to say, they believe that starch is harmful, or that it cannot be digested at the same time as protein (see Appendix 1). As a result there is a great run on starch-reduced biscuits, bread, and the like, and a totally unfounded prejudice against potatoes, parsnips, and even carrots and turnips.

But the plain truth is that the human digestion is fully and marvellously equipped to digest starch. The saliva brought down by hunger and by the sight, smell and taste of food contains an enzyme or living ferment which, if the food is not swallowed hurriedly, changes the starch content into a form of sugar. Later on, the pancreas-gland secretes another enzyme into the small intestine, which can complete the process—always providing such food has been adequately masticated and has not been eaten to excess.

Plants build up starch as part of their normal but mysterious life-processes. They first make sugar out of air and water, as already described, then turn it into starch for storing. The only use we can make of starch is as sugar. Our digestion has to turn it back into sugar.

There would probably never have been any talk about starchy foods and so-called starch-poisoning if towards the end of the eighteenth century there had not begun two far-reaching changes: the one, this comparatively modern business of the refinement of the staple grain-foods, the extraction of starch-flours from their sources in wheat, rice, potatoes, etc. (partly for laundry purposes and adhesives), and the extraction of sugar from cane-juice and beets to the point of ultra-purity; the other, the Industrial Revolution, which brought ever-increasing multitudes into town and city conditions and more or less sedentary occupations.

It also happens that refined sugars and many refined starch-foods can be produced cheaply and will keep for a long time. This, linked up with the artificial poverty imposed on society, or on the major part of it, by an irrational financial or money-system during the past hundred years, has helped to make white bread and biscuits, polished rice and sugar what newspapers and politicians still call staple foods, but what nutritional experts, the world over, now rightly name deficiency foods.

If, further, such refined starch-foods are eaten in soft, smooth, spongy, mushy or liquid forms (as in new bread, rice pudding, soft sweets, cornflour blancmange, custard powders, cocoa beverages, and the like) they are not masticated, and therefore saliva does not get mixed with them, and therefore they are not completely digested.

This hurried swallowing of soft starch-sugar commodities, alongside the lack of vigorous bodily activity, which tends to diminish the intake of the oxygen essential for the full use of starch and sugar, is the outstanding evil in present-day eating habits.

Two quite distinct things ensue. Either bits and patches of undigested starch reach the large bowel, there to stay put owing to their lack of fibre; or having been digested sufficiently for assimilation into the blood they are insufficiently broken down and do not reach the stage of water and carbonic acid gas, in which forms alone can they be thrown out of the body after their energy has been released: the water coming out in urine and sweat, and the gas in the outward breath.

Consequently, excess starch in our meals, or imperfect digestion of starch, or incomplete combustion of starch-elements in our muscles and blood and lymph, has exactly the same results as excess of sugar, and what such results can be I showed in talking of sugar in the preceding chapter.

At this point let us revert to the fact with which this book began: the make-up of human milk. This contains about $6\frac{1}{2}$ parts of sugar in every 100 parts of milk. So that, after allowing for the obvious fact that the growing child and the adult are more active than the baby at the breast, it should be evident that the large proportion of starch that the conventional meals contain is excessive. And when we further consider that a great number of people to-day are not muscularly active, owing to their occupations and (perhaps) lethargy, and again that much of the starch-food they eat, or rather swallow, is soft or mushy, it should be clear that I am not exploiting a personal fad or theory, but appealing to intelligence and common sense.

What foods, then, contain much starch?

Let me first dispose of a widely prevalent misconception about potatoes and other root vegetables. The mature potato is about one-fifth starch. After it has been baked in its jacket, this proportion is increased very slightly. The loss of water is barely 2 oz. to the pound.

Parsnips contain only 10 per cent of starch. Beetroots none at all. Carrots a mere trace, less than 1 per cent. Turnips

only 2 per cent. Jerusalem artichokes 3 per cent. Swedes practically none.*

White or brown bread	more than half starch
White flour biscuits	two-thirds ,,
Cornflour	four-fifths ,,
Polished rice	four-fifths ,,
Tapioca	nine-tenths ,,
Sweedish crispbread	two-thirds ,,
Lentils (before cooking)	more than half ,,
Butter beans (before cooking)	two-thirds ,,
Oats (raw)	more than half ,,

In so far as any in this list of really-truly starch foods are made with the whole grain, and are eaten crisp or dry so as to ensure mouth-digestion, they are wholesome and good, providing that the amount consumed corresponds with the bodily activity. Hence the Hungarian sculptor, who got into the newspapers early in 1938, was at least getting a whole food when he lived solely on the oats he stole from the horses' nose-bags. He was getting not only starch, but protein, minerals, vitamins and even a little fat. And as his digestion was thus enormously simplified by eating nothing else and as, presumably, sculpting means muscular activity, he was all the better for his plain fare, in spite of breaking Dr. Hay's commandment not to mix protein and starch at the same meal. Probably for years before that he had swallowed the usual inconsidered jumble: what so many people refer to, in a tone of voice that suggests that it is common sense, as 'taking whatever's going.'

In view of the constitution of human milk, therefore, and the make-up of potatoes and other root vegetables, it is plain sense to rely for *bulk* more on these excellent and economical vegetables than on bread, steamed puddings, pastry, cake, biscuits and the like. Especially since the minerals in root vegetables are predominantly alkaline, while the minerals in whole grains are mostly phosphatic and therefore acid in tendency. Not but what whole-grain foods are excellent, but under present-day conditions they are easily overdone.

* As shown by the Medical Research publication *The Nutritive Values of Fruits, Nuts and Vegetables*. (H.M. Stationery Office, 1937, 2s.)

6.—The Truth about Roughage

ONE cannot but be sorry for any Frenchman, Italian or other European who attempts to pronounce this extraordinary word at sight. But it is scarcely less extraordinary that what it represents should in recent times have become a dominant idea among food-conscious people.

It seems to have arisen as follows: Sir William Arbuthnot Lane—whose powerful services to food reform for the past twelve or fifteen years are hereby cordially acknowledged—after a lifetime's 'successful' abdominal surgery, was compelled to call attention to the dreadful effects of highly processed and refined foodstuffs. His first-hand surgical observation of the appalling condition of the average colon or large bowel brought the fact home to him. All honour to him that he said so, publicly and repeatedly, and not a little to the scandal of his profession.

But it is one thing to see *one* of the disastrous results of ultra-refined starch-foods, and quite another thing to suggest that the one and only cause of constipation (or bowel laziness) is lack of bran and to recommend all and sundry to consume large amounts of coarse branny foods in order to prevent and remove the curse of constipation.

Let us consider some facts.

During the period when a baby is getting all its food from its mother it has no roughage or fibre whatever. Yet, if the mother is reasonably healthy, it has regular bowel-motions. Which proves that a baby's bowel-muscles act rhythmically without the bran that roughage-advocates insist is essential for those muscles to work on.

As to growing children and adults, some interesting facts are available.

Those Oriental peoples with whom rice is a staple food are not afflicted with constipation, yet the outermost husk is not included; though the mealy, creamy-coloured rice consumed is a totally different proposition from the polished stuff sold in Western countries; neither is it the same as the de-germinated 'brown' rice now obtainable. Many years ago I saw some small bags of the mealy rice (paddy) as consumed in Burma. When opened they were alive with vermin. It is to prevent this that the mealy surface has to be removed for shipment of rice to Europe for commercial purposes.

In pre-industrialized Scotland coarse oatmeal was the staple food and there was little or no constipation. Yet coarse

oatmeal had and has the woody husk or bran removed, while it retains that mealy surface noticed above in regard to natural rice, as well as the germ of embryo.

The expert farming race of Béné negroes in West Africa have no constipation unless they acquire European food-habits. Yet they neither cultivate nor eat *any grain-food whatever*; their principal starch-food is a large tuberous vegetable similar to the potato, which the women spend hours every day in pounding to a smooth pulp. Whatever part the thin skin of this huge tuber plays, it has not the spiky characteristics of wheat- or rye-bran.

The inhabitants of Tristan de Cunha have only potatoes as their starch-food and are free from constipation—not to mention other ailments.

The finest types of Polynesian people, before they were infected with European ways, had no grain-food, but ate freely of starch-sugar foods such as bread-fruit, yams and bananas—all of which, by the way, have an alkaline balance as against the acid-balance of grain-foods—and they were beautiful and healthy.

English people do not live in the South Seas, or in West Africa, or in Burma and South China; nevertheless, it is such observed facts of human experience that should guide us in preference to rough-and-ready assumptions. There has been far too much readiness to treat the bowel rough!

My own experience and observation—fully supported by the objective clinical evidence provided by the Collings Thre-fold Analysis Technique—lead me to submit that a too-free consumption of coarse branny grain-foods by the none-too-active townspeople of modern England *cannot but* overload the body with starch and phosphorus, *even though* its branny roughage excites a lazy bowel to *simulate* normal rythmical movement. But not only so. It can be proved, by microscopical examinations of fæces, that in a great many cases this coarse roughage irritates the bowel-lining. And such cases are by no means confined to those in which colitis is present.

The practical conclusion to which we arrive after reviewing these observed facts is not that wholemeal wheat and rye foods, or prepared bran and bran flakes, should be avoided—except in special instances—but that they do not provide the *best* kind of fibre or roughage for people who do not live a *vigorous out-door life*.

On the other hand, the conclusion already reached in previous chapters, namely, that the most valuable foods for the people of the temperate zones are the cultivated vegetables

of all kinds, is here doubly confirmed in the matter of 'roughage'. For the cellulose or fibrous connective tissue of vegetables, especially of raw green and root vegetables and of oven-baked jacket-potatoes, does supply sufficient non-digestible bulk to prevent constipation with no irritating disadvantages.* Though in special cases, such as gastric or duodenal ulcer and colitis, discrimination is necessary as to what vegetables are eaten, and in what form.

Ripe fruit and soaked or simmered dried fruits also supply non-irritating cellulose; while of the various kind of nuts, pinekernels are the least fibrous in themselves, and all other kinds can be reduced to a smooth consistency, as for instance in Almond Cream (which is obtainable in jars), which renders them suitable for almost everyone. But unless whole nuts are masticated to a degree that few in this present era of hurry and 'nerves' attempt, their gritty particles frequently disturb the digestion of other food.

To sum up in a sentence: the *normal* evacuating movements of the large bowel are dependent not so much on coarse roughage as on sound nutrition and on the internal harmony of the whole person.

*Not that constipation is due solely to lack of roughage. See my booklet *Constipation*. (Daniel, 1s.)

7.—Fats and Oils

STILL keeping closely to the make-up of human milk as our starting point, we find that the fat or cream in milk accounts for about $3\frac{1}{2}$ parts in a hundred, compared with about $1\frac{1}{2}$ parts of protein and $6\frac{1}{2}$ parts of sugar. If the mother's body-cells produce this proportion for the baby, it seems clear that fat is of considerable importance in our food.

Whether the same high proportion is desirable for the adult depends on whether a baby needs more fat, owing to its immature condition, than a mature man or woman. To get light on this aspect of the matter we must consider what is known as to how fat is used by the body.

First the globules of fat are broken up into smaller globules by the action of the teeth and the liquid nature of saliva and stomach-juice. On passing into the intestine, these smaller globules are emulsified, a process carried out by ferments or enzymes present in the secretion of the pancreas. These in turn are stimulated in some obscure way by the bile excreted into the intestine from the liver. This emulsification needs also those supremely important minerals, potassium, calcium and sodium, for these enable the emulsified fat to be split up into acids and 'soap'—which is what soap-makers do in a factory. Only then can the cells of the intestine-lining pick up the **fatty materials**.

It now appears that these intestinal cells have the astonishing ability to reunite the acids and 'soap' into minute fat-globules! In this form they are picked up by the white cells of the blood and passed into a lymphatic duct, and thence discharged into the blood again before it enters the heart. By this elaborate means fat is distributed throughout the body.

It is odd that fats and oils consist of the same three elements as starches and sugars—namely, carbon, oxygen and hydrogen (see previous chapters). It follows that they, too, are available for combustion (heat and energy). But also this distributed fatty material is used (as such) as a protective covering for muscles and nerves. So that fat in food is utilized in two **quite distinct ways**.

Now a baby needs protection of its tender structure. It cannot yet run and walk, yet every organ needs warmth. On the other hand its relative lack of movement means that it does not need so much fuel-food as an adult. So it would seem that the reason for fat in human milk is chiefly for protective warmth, and that as growth proceeds and the child

becomes active and grows to maturity, its fuel or energy requirements can be met just as well, if not better, by sugar as by fat.

Theoretically, it would follow that the adult *could* dispense with sugar and use his fat or oil intake for combustion, but in practice this does not hold good, because the digestion of fat is easily overtaxed. As we have seen, it calls for abundant alkaline elements, and these are likely to be wanted for many other purposes, whereas sugar is more easily absorbed. (Let me remind the reader that by sugar is meant the sugar present in various unspoiled foods and the sugar into which starch is changed by the saliva and other digestive juices, and not the highly concentrated and refined sugar sold in the shops: this was fully detailed in Chapter 4, and is of very great importance.)

Any fat or oil that is not completely emulsified and 'split' in the intestine passes on into the large bowel. Some small excess of this nature is helpful to the passage of waste matter out of the body from that all-too-readily congested organ. But a larger excess can disturb digestion. Moreover, more 'split' fat or oil can be absorbed into the system than is needed, leading on to accumulation of acids. Thus, excess of butter produces butyric acid, which the kidneys do their best to clear out in urine.

Nevertheless, butter is for most people the most easily digested fat because the globules of the milk-cream have been broken up by the churning process. For the same reason cream is more digestible when whipped. Oils have a somewhat larger globule than butter, cream or animal fats, and are therefore less readily digested, a larger proportion passing on to the bowel as a lubricant. But oils differ. Thus, nut oils and soya oil are slightly more digestible than olive oil.

Mineral oils, so widely used as laxatives or lubricants, are not digested at all: they pass right through the digestive tract unchanged. If taken over extended periods, however, there is a risk of the small and large intestines becoming coated with a retained film of this unusable mineral oil—which is a warning!

Since fats and oils consist of the same three elements as starches and sugars, an excessive consumption of the latter often results in the formation of excess fat as such. And to some extent, as we have seen, fats can be used by the cells as a source of heat or energy. In this connection it should be realised that the common free consumption of malted milk and liquors (beer, stout and the like) can easily lead to obesity,

malt being starch on the way to being sugar. (See chapter 5 for the important facts about starch.)

Fat is very unequally distributed in common foods. Most forms of flesh-food contain fat. Egg-yolk is one-third fat. The much advertized value of cod-liver and halibut oil is due much more to the minerals and vitamins in these than to the oil. Grains contain extremely little (except for oatmeal, which has as much per 100 parts as human milk), which is, perhaps, why we instinctively like butter on bread, and on potatoes.

Fresh fruits and vegetables contain practically no fat, except for the olive and avocado pear. The kernels of plums, apricots and other stone-fruit contain much oil, being nuts.

Soya is unique among beans for its oil content, since it contains some seventeen parts, while the other pulses and dried legumes have little more than one part, in a hundred.

Except for chestnuts, all the nuts are by far the richest fat-foods available from the vegetable kingdom; almonds, walnuts and pinekernels being half fat, and Brazils and Barcelonas nearly two-thirds. Since these nuts are also rich in protein they are an excellent source of both protein and fat for those who will take the trouble to masticate them or whose digestive powers can deal with them lower down. Owing to their high fat-content, they become indigestible when roasted, for cooking certainly does render fats irritating to a greater or less degree. To eat them as 'dessert' at the end of a meal, or between meals, as in nut chocolate, is not likely to give good results, for they are highly concentrated packets of nutriment.

One of the best ways of using nuts is in the form of nut cream, which does not mean the 'cream' separated from the nuts as cream is separated from milk, but the whole nuts reduced to a smooth creamy consistency. These nut creams are supplied by Health Stores.

In America what is called peanut butter is widely used. Probably many people still do not realise that it is not 'butter' but the whole nut. In Great Britain 'nut butter' means the solidified and tasteless oil extracted from coconuts and flavoured with a proportion of ground nuts, such as almonds, walnuts, etc.

Dairy fats—milk, cream, butter, egg-yolk—are sources of the fat-soluble vitamins A and D.

8.—The Essential Mineral Income

THE ancient Hebrew scripture that declared man to have been made out of the dust of the earth was scientifically accurate, so far as the body is concerned. From the point of view of the physical sciences, all forms of plant-life are wrought by solar radiation out of 'dust' (mineral), water, and atmospheric gases. And, directly or indirectly, every form of living thing on the earth is made of the same things.

As we have seen in previous chapters in this book, what is called protein is a complex organized mixture of minerals and gases, while sugars and starches and fats and oils are equally complex structures built up out of carbon, oxygen, and hydrogen. But there are many other minerals that are not present in these food-constituents. Some are acid, some alkaline.

Reverting to our basic principle of human milk, we find that this contains not only protein, sugar and fat, but both acid and alkaline minerals. The total of these is less than half a part in 100 parts of dried milk, yet they are fully as essential as the protein, the fat and the sugar. *The smallness of amount is no indication of their importance.*

The following simplified table shows the *proportions* in which the principal alkaline and acid minerals are present in human milk :*

HUMAN MILK			
ALKALINE MINERALS		ACID MINERALS	
Potassium	. . . 120	Phosphorus	. . . 80
Sodium	. . . 30	Sulphur	. . . 1
Calcium	. . . 60	Chlorine	. . . 60
Magnesium	. . . 7	Silica	. . . $\frac{1}{700}$
Iron	. . . $\frac{1}{700}$		

From which it is at least clear that the alkaline minerals need to predominate in the proportion of three to two. It is not, however, *merely* a matter of quantity. Those inconceivably small amounts of iron and silica, for example, are essential, as essential as the relatively large amounts of potassium, phosphorus and calcium, while other minerals, such as iodine, fluorine, copper, zinc, barium, lithium, maganese, and aluminium, are present in human tissues and plants in even smaller quantities.

* Based on analysis given in Otto Carqué's *Vital Facts About Food*. (Out of print.) Whether that analysis is of a single specimen or the average of several he does not state. It is highly probable the proportions would vary somewhat according to the mother's health, and on the quality and nature of her food.

The minerals in milk and in all unspoiled foods are mostly in combination. Alkalies are usually combined with acids. But the process of digestion and assimilation can split these up and use both acid and alkaline mineral for differing purposes. Thus, sodium chloride—sodium linked up with chlorine—which, by the way, is a gas—is a major ingredient of the clear part of the blood, calcium phosphate is a major ingredient of the bones, potassium phosphate and magnesium phosphate are essential to nerve structures. But also, apart from these nutritional needs, the alkaline minerals—particularly calcium and sodium—are used by the living cells for the vital purpose of clearing out the acid end-products of proteins, starches, sugars and fats.

The cells are manifestly endowed with a profound impulse towards the maintenance of a right *balance* between acid and alkali in all the fluids and tissues of the body. Acid is continually and unavoidably formed in the process of nutrition. There is a steady flow of nutritive material *towards* the cells of which every part of the body is built, and there is a like flow of acid-waste coming *from* the cells. The clear fluid called lymph, in which this two-way traffic proceeds, needs, therefore, a steady flow into it, from the blood, of alkaline minerals.

It should now be clear that these minute amounts of minerals, as distinct from the elements of which protein, sugar and fat consist, are part of the body's total needs; and they are necessary not only for the building up and repair of the cells and fluids, but for the vital economy by which the condition of the cells and fluids is maintained as near normal as possible. In other words, the minerals in food are needed both for nutrition and for function. And there they are in human milk, with more alkalies than acids.

It is seldom, I think, realised that these mineral food-elements are utilized by living cells in an extremely attenuated condition. The late C. H. Collings, to whose research in this field I am deeply indebted, once used* the 'tail' of a comet to illustrate how a very small total *weight* of mineral matter could be 'spread out' over an immense *area*. The same fact applies to the assimilation of digested food by the cells of the human body. A single cell of the vast multitude that make up a muscle-fibre, a nerve-filament, or a gland is almost inconceivably small: the mind can scarcely grasp its minuteness. It can be seen only under a powerful microscope. This single

* In an article contributed to *The Healthy Life* magazine some twenty-four years ago.

cell consists of (a) a complex central nucleus in (b) a watery jelly enclosed in (c) a membrane.

Food is not truly assimilated until its constituent elements have passed first through the membrane of the *villi* or tiny tongues that line the small intestine, then through the membrane or 'wall' of the smallest blood vessels, and then, after some travelling, through the membrane or 'wall' of the smaller arteries or capillaries into the lymph, and then and finally through the membrane surrounding the individual cell. Ponder what all this means.

Nutrition begins with tangible substances in the mouth, but it ends in the world of the infinitesimally minute.

In that inner physical world of the body the highly complex living activities of the cells break down, distribute and synthesise what began as a meal—an utterly astounding diversity of action carried on through no conscious effort of the mind.

9.—Which Foods are Alkaline?

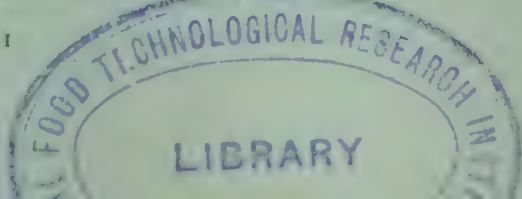
AND now for our adult supplies of food-minerals. In the light of all that has been discovered by food-analysis, there need be no doubt as to what kinds of food are richest in the vitally important alkaline minerals. The following figures, extracted from the latest investigations,* are in milligrams per 100 grams of water-free substance, which means that the actual *amounts* are extremely small—see Chapter 8.

	PRINCIPAL ALKALINE MINERALS						PRINCIPAL ACID MINERAL
	Pot.	Sod.	Cal.	Mag.	Iron	Phos.	
{ Watercress .	314	60.0	222.0	17.0	1.62	52.0	
{ Radish .	240	59.0	43.7	11.4	1.88	27.1	
{ Spring Onion .	226	13.0	135.0	10.9	1.24	23.6	
{ Celery .	278	137.0	52.2	9.6	0.61	31.7	
{ Dessert Apple .	120	2.0	3.5	4.3	0.29	8.5	
{ Banana .	348	1.2	6.8	41.9	0.41	28.1	
{ White Grape .	250	1.6	19.1	6.6	0.34	21.9	
{ Lemon Juice .	142	1.5	8.4	6.6	0.14	10.3	
{ Orange .	197	2.9	41.3	12.9	0.33	23.7	
{ Tomato .	288	2.8	13.3	11.0	0.43	21.3	
{ Whole Wheat Flour .	7.2	0.5	0.75	2.80	0.3	10.9	
{ Oatmeal .	5.5	1.0	1.10	1.75	0.05	8.1	

Here are three types of unspoiled foods—raw vegetables, ripe fruits, whole grains. I have included different kinds inside each group, to enable the reader to get a fair notion of their individual characteristics in terms of alkaline and acid minerals. To make the facts still clearer, let us note the *average* for each of the above groups, thus :

	PRINCIPAL ALKALINE MINERALS					PRINCIPAL ACID MINERAL
	Pot.	Sod.	Cal.	Mag.	Iron	Phos.
Vegetables	264	67	113	12	1.34	33
Fruits	224	2	15.4	14	0.32	19
Grains	6.3	0.75	0.92	2.27	0.17	9.5

*The figures for vegetables and fruits are from *The Nutritive Value of Fruits, Nuts and Vegetables*, by McCance, Widdowson and Shackleton. (H.M. Stationery Office, 1936, 2s.)



These figures speak plainly. They show that while fruits are approximately equal to vegetables in potassium and magnesium, they lag far behind in sodium, calcium and iron; and they show that whole grains are still weaker in these absolutely vital elements.

Moreover, the *proportion* between the chief alkaline minerals and the chief acid mineral again brings vegetables into great superiority over the others.

But that is not all there is to note, important as it is for practical guidance, as we shall see.

In comparing the relative *alkaline* content of vegetables, fruits and grains, it is essential to remember that in *other* respects grains differ very greatly from the other two. For while fresh vegetables and fruits are largely water and contain very little protein, and, with a few exceptions, very little starch, grains are tightly packed with starch and are fairly rich in protein as well.

Now the end-products of the complete assimilation or metabolism of both starch and protein are of an acid character, for the clearing away of which alkalies and fresh air are essential.

But fruits also differ from vegetables in that they naturally contain distinctive and in themselves wholesome acids: such as tartaric acid in grapes, malic acid in apples, sulphuric acid in tomatoes. The 'natural acid' content of fruit varies greatly as between different kinds and in general is very considerably higher than that of vegetables, as will be seen by the following figures* extracted from *Nutritive Value of Fruit, Nuts and Vegetables* (already referred to several times because it records the most recent research):

'NATURAL' ACID CONTENT OF FRUITS AND VEGETABLES

Dried Figs	15	Tomatoes	73
Carrots	18	Dessert Apples (English)	82
Yellow Melon	19	Cooking Apples (English)	189
Sultanas	20	Oranges	102
Turnips	23	Grapefruit	203
Onions	30	Dried Prunes	261
Celery	35	Red Currants	350
Dessert Pears	44	Dried Apricots	664
White Grapes	53	Black Currants	443
Black Grapes	96	Lemon juice	947

The practical importance of these figures is this: Storage of *waste-acids*—that is, acids normally resulting from the assimilation

*Titratable acidity c.c. N/10 per 100 grammes fruit or vegetable.

lation of protein, starch, sugar and fat, or abnormally from disturbed digestion and assimilation—in the tissues of the body is an extremely common factor in the majority of ailments. A really healthy person, of course, gets rid of such acid-waste as quickly as it is formed. This acid-storage, which is not the acidosis of present-day medical theory, but is very much acidosis all the same, is not the only factor in ill-health. Nevertheless, my experience with the Collings Threefold Analysis technique during the past twelve years, has proved that it is extremely prevalent, even among those who are not actually ill but merely sub-healthy.

Of the waste-acids thus stored, I have positive proof that oxalic acid is not only more irritating to the body-cells than the much advertised uric acid, but that it is harder work for the system to get rid of it.

Now when any considerable degree of such acid-storage is present, the supreme need of the body is for plenty of alkaline minerals in suitable attenuation; and further, in such a situation, a free consumption of foods rich in acids, however 'natural' these be, is not going to help the healing impulse of the cells, but to make things more difficult.

However, this book is not concerned with the treatment of ailments, so I can only refer the interested reader to my articles on rational therapy in *Health and Life*.†

But at least it should be evident that if we want to cleanse the body of stored acids and build up maximum health, we should be wise to prefer those kinds of fruit that contain the smaller amounts of acid, as indicated in the figures given above. The fact that fresh lemon juice, for example, contains vitamins is no reason for drinking it freely, for all raw fruits contain vitamins, as indeed do all fresh unspoiled foods.

I am naturally aware of the fact that in endless books and articles on food and health the statement is made that fruit-acids are easily converted into alkalies in the stomach, or in the blood, or in the tissues—there is an exasperating vagueness in so much that is written! But I have looked in vain for tangible evidence in support of this assertion.

Fruit-acids have to be oxidized by the body if they are to be utilized to our good. This process requires fresh air, bodily activity, warmth and sunshine for its completion. It is not only that the English climate is not tropical or even South European—a point airily ignored by the dogmatic advocates of fruit-diets and fruit-juice 'cures'—but that under present-

†Monthly, 9d.

day conditions the majority of people in England spend much of their time indoors, and that vast numbers earn their livelihood in sedentary occupations, involving the very opposite of muscular activity! Not only so, but it has become more attractive to thousands to sit and watch something—a football match, a greyhound race, or a ‘movie’—than to engage in some vigorous pastime as individuals or groups.

Behold the anæmic or constipated typist, after sitting at her machine eight hours a day, devouring the health and beauty column of some incredibly debased rag of a picture-paper! “To clear blackheads,” she reads, “you should apply” this, that or other more or less worthless and clogging cosmetic “to the face night and morning, and drink the juice of a whole lemon night and morning.” Whereupon, her hungry little heart dreaming of the glamour that may still be her reward, she goes ahead, with results that do not get published.

The gist of the matter is (a) that fruit is a summer food *par excellence*; (b) fruit eaten in the colder months should be moderate in amount, especially for people of sedentary indoor habits or work, and confined chiefly to the least acid varieties. And it should be ripe,* for sour fruit cooked with refined sugar, however sweet the added sugar makes it *taste*, is sour fruit just the same—a fact that when stated invariably brings a look of either stupor or resentment into the feminine faces of every audience which I have addressed during the past twenty years! I refer here to the very sour and often indifferent varieties of plums and apples of which such large amounts are consumed because they are cheap. The best kinds of cooking apples, or windfalls of dessert apples and pears, are quite wholesome in moderation.

After all, is it not a little unnatural that English people should not reflect on the simple fact that of the fruits *native to England*, only apples and pears (apart from hot-house products) are available when winter arrives, and that *there is no native fruit whatever on the trees from then on till gooseberries and strawberries are gathered five or six months later*?†

*The dried fruits, which are very useful in winter and spring, are all tree-ripened, and much better value than canned fruits in syrup. Dried sultanas, raisins, figs and pears are the least acid. They are best eaten after steeping or gentle simmering, and require no added sugar..

†The drying of English damsons and other stone-fruit in the autumn for winter use could easily be organised. It will be news to most readers that during the Great War, Mapletons of Garston, Liverpool, initiated a small plant for drying home-grown damsons. The product was delicious. But the Government knew better, and throttled the enterprise by a regulation that cornered the damson crop for jam-making. So much for enlightenment in Whitehall.

Yet to read the bulk of what is handed out to the public on this subject, one is expected to believe that if our supplies of imported fresh fruit were to be held up, the health of the nation would suffer severely.

Such loss of fundamental earth-born sense shows how deep has been the damage wrought by the grossly exaggerated notion, so sedulously inspired by high financial policy, that foreign trade is the true basis of national well-being. The 'Eat More Fruit' publicity stunt was directed in the main to increasing the consumption of fruit imported from the ends of the earth. What we need is the slogan 'English Fruit is Best,' *and a policy to make it available for all and profitable to the grower.*

Is there any American or Colonial apple or pear that can hold a candle to a fine English apple or pear? And is there not significance in the scientifically ascertained fact that dessert English apples and pears, which alone among native fruits can be stored through the early winter, are among the least acid of fruits, and therefore are most suitable for eating in cold weather, for the reasons already given?

And is there not equal significance in the fact that our rich array of cold-weather vegetables—onions, potatoes, swedes, turnips, celery, salsify, Savoy cabbage, red cabbage, endive, leeks, seakale, flowering broccoli—the result of three centuries of English skill and patience, are so remarkably rich in precisely those health-preserving alkaline minerals already enumerated?

All these, with the exception of the potato, provide not only for the stew-pan, the oven and the casserole, but for vitalizing raw salads, with their all-important vitamins, as will be shown in a later chapter.

I know all the reactions that the foregoing paragraphs will provoke in the minds of perhaps the majority of my readers. But I know also that, for the most part, these reactions will be what psychologists call conditioned reflexes. They will be reactions, protests, objections, arguments conditioned by the sum total of those social, economic and financial influences reviewed in the Introductory chapter.

No progress, no re-valuation, no renaissance in any direction or on any level is ever achieved by conditioned reflexes, but only by purposeful intelligence inspired and fed by direct apprehension of objective facts without and primary realities within.

10.—More about Minerals in Food

BEFORE proceeding, we must answer a question that has probably arisen in the reader's mind, namely, how do foods other than vegetables, grains and fruits stand in regard to their mineral content?

CHEESE: However this be made, whether home-made cottage cheese prepared by gently heating milk and lemon juice, or by any of the factory processes, the result leaves behind in the whey approximately half the mineral salts that were in the milk to start with. Even so, cheese is fairly rich in calcium, the most important of the alkaline minerals.

EGGS: Phosphorus leads the list, as we find in all seed-foods, while as regards alkaline elements, eggs are slightly richer than grain-foods and rather less so than fruits.

FISH: Recent research* gives remarkably high amounts of all the alkaline minerals, except iron, in all kinds of fresh fish other than oysters, mussels and the like.

CHICKEN AND MEAT: The same researches show these to be fairly rich in potassium, sodium and magnesium, but low in iron and calcium. In fish, chicken and meat, phosphorus (the acid mineral) is high.

It has been argued by some vegetarian advocates that the minerals in fish, chicken and meat are 'different' from those in vegetables, grains and fruit, and therefore do not meet human needs. It is difficult to see how this contention can be supported as it stands. What is true is that all animal tissues of necessity contain acid waste-products akin to or identical with those produced in our own bodies. Further, that unless animal foods are perfectly fresh when eaten, the products of decomposition must also be present. Which means that their valuable alkaline ingredients are, so to speak, cancelled out.

COMMON SALT AND BAKING SODA: A word should be said at this point as to the very general consumption of common salt (sodium chloride) and baking soda (sodium bicarbonate). On the face of it, and in view of the facts thus far reviewed, these should supply valuable alkaline mineral matter to the human body. But in practice—which is the only final test—it is found that *in these forms* such mineral ingredients are utilised by human body-cells with great difficulty. The *relatively* coarse granules (as compared with the highly attenuated particles present in vegetables and other foods), and the *relatively* massive amounts thus consumed, are quite alien to that

**The Chemistry of Flesh Foods*, by R. A. McCance and H. L. Shipp, 1933. (H.M. Stationery Office, 2s. 6d.)

underworld of microscopical cell-life which was described in Chapter 7. Some minute fraction of common salt may be assimilated, *especially when the cells are desperately needing it*, but the remainder is an irritant which the body does its best to throw out again. The same holds good for the sodium residue that remains in bread, cake, etc., made with baking powder.

Precisely the same considerations apply to the widespread consumption of iron tonics and other medicines containing *relatively* massive amounts of iodine, zinc, arsenic, and other minerals. On the other hand, the principal reason why the highly attenuated 'tissue-salts' used by homœopaths and practitioners of 'biochemic' therapy are demonstrably helpful—and permanently helpful—to the cells, is that their condition so closely resembles that of the minerals in vegetables, fruits, milk, etc.

ALUMINIUM: Finally, a word as to aluminium cooking vessels. It is some forty years since doubts began to arise in the minds of keen students of health and nutrition as to the harmlessness of this metal when brought into contact with food at cooking temperatures. Since then a considerable controversy has raged, and a summing up of the evidence for and against will be found in my book, *Why Aluminium Pans are Dangerous*. (15.) But it will be useful to underline two considerations here.

The aluminium industry has, quite naturally, made great efforts to allay public uneasiness. Their 1938 pamphlet, printed in many colours, made much of the fact that aluminium is found, by chemical analysis, in many vegetables and fruits. From this they argue (*a*) that this mineral is necessary to the body; (*b*) that any aluminium salts absorbed by food cooked in aluminium vessels are therefore harmless.

As to (*a*), the amounts of this element naturally present in foods are almost inconceivably small, though the way in which the figures are presented in the pamphlet is calculated to obscure this fact.

As to (*b*), it does not follow that because extremely small proportions of aluminium have been found by analysis in cultivated foods, dairy products and animal and human tissues, therefore this mineral as absorbed by food cooked in aluminium vessels can be utilized by human cells, or that it is harmless. As already pointed out, the human body likes its minerals in a highly attenuated condition. Plants provide minerals in this suitable condition because only in this form can *they* assimilate them.

11.—Some Home-Truths about Vitamins

THE attention given to vitamins in recent years is a perfect example of what Dr. G. T. Wrench, the author of *The Wheel of Health*,* calls fragmentation: that is, making much of bits of things and losing sight of whole things.

As far back as 1881, laboratory feeding experiments on animals led Professor (later Sir) Frederick Gowland Hopkins to the conclusion that there was more in food than proteins, fats, carbohydrates and mineral salts. Apparently these unfortunate animals were being fed on very one-sided diets or with processed or synthetic food-substances, and wilted as a consequence. When some *whole* food, such as milk, was mercifully added they began to pick up.

So the ironical truth is that we owe the discovery of vitamins to the intrinsically irrational procedure of feeding animals with unnatural, 'fragmented' food-substances.

At first, the as yet unidentified substances were called 'accessory food factors'—not a good name for the telling of a newspaper story. Later, Dr. Casimir Funk coined the word *vitamines* (as it was at first spelt, owing to a mistaken belief that they were related to the amino-acids in proteins), and this was eventually corrected to VITAMINS, which is a much handsomer word than usually issues from laboratories.

This in turn has produced a startling array of commercial food-products beginning or ending with the letters VITA, not to mention so-called vitamin extracts, concentrates and the like.†

By far the strangest aspect of this fascinating subject is revealed in the descriptive sub-titles allotted to the various vitamins thus far discovered. One is the anti-neuritic vitamin, another the anti-scorbutic, another the anti-sterility, from which the public is tempted to conclude that 'Nature' thinks and builds in terms of disease. A cosmic committee meeting at the dawn of life discusses the many horrid germs and complaints that are lying ready to attack man when in the fullness of time he appears on the earth. He will get, say, rickets or

*C. W. Daniel Co., 9s.

†Indeed—let it be here confessed—I myself was responsible, in 1924, for a food-reform restaurant called The Vitamin Café. It was the most costly blunder I ever made—the restaurant, not the name. But at least it introduced the title of 'Vitamin Salad' to the daily menu, a name adopted by quite a number of restaurants since. The distinctive point about that salad was the inclusion of grated raw roots, and it was a good thing to get that notion popularized in public catering.

scurvy or pellagra or beri-beri, or go mopish, unless something is prepared to combat these assaults upon his happiness. After much argument, not entirely free from personal recriminations that so commonly afflict committees, specific vitamins are decided upon and plans prepared. Eventually man does appear and for hundreds of thousands of years eats whatever he can find that experience teaches him is wholesome. And he continues to do so until the dawn of the twentieth century A.D. By this time, however, the most enterprising branch of the human race has for several generations got into the way of altering, spoiling, refining, extracting and concentrating its food to such an extent that sub-health and disease have become alarmingly common; and this has spread to other less 'advanced' peoples.

Then laboratory workers discovered vitamins. But unlike Adam who, in the beautiful Genesis story, gave attractive names to all the animals, calling this big fellow Elephant and this little chap Mouse—and very good names, too, if only one could be persuaded that our first parent spoke English—these descendants of his could not think of anything more exciting than the letters of the alphabet. And when it was found that vitamin B had a complicated nature, they called one part B₁, another B₂, another B₃, which in my opinion showed marked disrespect for the primordial cosmic committee.

It does not seem to have occurred to these very able and assiduous investigators that once you start subtracting anything from a living organism or fluid or tissue that is eaten, unsatisfactory results follow. Thus, it is not a question of whether the consumption of the living germ or embryo of wheat or rice or any edible grain will counteract this or that human disorder arising from consuming grain-flour that has had the embryo sifted out in the mill: it is that when the embryo or germ of grain-foods is eaten as part of the whole food it is what countless generations of pre-Industrial mankind had done without ever having dreamed of doing anything else. Their common sense saved them from *that* blunder.

Yet it is now common—without the sense—for journalists to tell the public that although so much 'civilized' food has become highly artificial, the remedy is more artificiality*—in other words, take a teaspoonful of vitamin-extract night and morning to counteract your dishonest food and all will be well. To such a pass have we come with our popular science.

Not that journalists are the only sinners. A five-volume

*"The remedy for artificiality is more artificiality"; Mr. John Langdon-Davies in an article on vitamins in *Picture Post*, December 17th, 1938.

medical reference-work in my possession, in an article on vitamins, says that the scurvy that was so prevalent among sailors on long voyages in the seventeenth and eighteenth centuries was due to their living on canned food! There was, of course, no canned food before the middle of the nineteenth century. What mariners ate in the bad but brave old days was chiefly ship's biscuits, dried peas and brine-pickled pork. The old ship's biscuits were made from wholewheat, and the weevils that so often infested them cannot be held responsible for scurvy. It was the one-sided rationing, the lack of fresh food, especially of fresh vegetables and fruit, and perhaps the over-consumption of salt, that upset the blood and tissues. And it was not West Indian lime-juice that reduced scurvy on long voyages, it was partly the sweet Mediterranean lemons (not the kind sold in British shops to-day), partly the fact that faster sailing enabled ships to take on board fresh food at shorter intervals, and partly that food-stores gradually became more varied.

Quite a different kind of reaction to the discovery of vitamins is that of the fantasy addict, the individual who, in his anxiety to give the universe a better character, seizes on any fragment of scientific knowledge or hypothesis that lends itself to a mysterious or transcendental theory. To such people vitamins have been veritable manna from heaven. They are announced to open-mouthed disciples as a form of *prana*, or as etheric emanations, or as non-material packets of cosmic rays—anything rather than groups of atoms. To people of this mentality a group of atoms is annoying, for atoms are material. This is a pity and quite unnecessary. For a truly child-like or unconditioned contemplation of any form of matter, inert or living—diamonds, or stars, or roses, or soil-bacteria, or elephants, or dandelions, or bees, or 'the human form divine'—can as readily induce the leap of poetry as the loftiest speculation on 'ultimate reality.'

My heart leaps up when I behold
A rainbow in the sky.

It leaps as strongly—I would say more strongly—when one knows how the rainbow is produced; not less.

It is a false religiosity, a sham mysticism, that substitutes fancies for realities. It is the shock of reality that shakes the spirit: day-dreams are for cowards.

As a matter of fact, the chemical or atomic structure of those of the vitamins thus far identified is now known. These marvellously minute substances are particular patterns of our old friends Carbon, Hydrogen and Oxygen, with Nitrogen as

well in one or two. Here indeed is matter for profound wonder—that the particular pattern in which atoms of material elements are arranged through the creative energies in the universe should produce the dazzling variety of the world about us and of the world of our body! There is just sufficient difference in the way the atoms in snake-venom and the atoms in egg-albumin are arranged to make one edible and the other deadly, though both are proteins. Oil and starch and alcohol are as different from each other as chalk from cheese, yet they are differing patterns of the same three elements, Carbon, Oxygen, Hydrogen.

It is true that the atom is now conceived in physical science as a strange emptiness inhabited by electric charges called electrons. But this applies to all matter and not only to vitamins. In short, vitamins are part of the living and flowing architecture of the astonishing universe of which we ourselves are a part, and of which also, in our total being, both actual and potential, each of us is a synthesis. Every advance in that order of knowledge called scientific unveils divinity. But though it is necessary to look very closely at the 'trees,' we have ever to guard against losing sight of the 'wood.'

Let us return to the practical issue in regard to nutrition. It is abundantly proved that if the daily meals consist of whole fresh foods, with a good proportion uncooked, and if such foods are used in such variety as knowledge and experience indicate as desirable, we shall get all the vitamins, known and unknown.

Over-emphasis on vitamins has confused the central issues of nutrition, and can and does even lead to mistakes. For example, excess consumption of raw fruit or of whole-grain foods in the climate of Britain, especially by people with much indoor work, does not give good results in spite of the vitamins present—naturally present—in fruits and grains. The more I see of how things actually work out, the more am I of the opinion that it is the *alkaline over-plus* that is the central factor in sound nutrition. This in practice means that dairy produce and fresh vegetables are the best foods for English people, with whole grain products, ripe fruit in season, nuts and possibly fish as secondary supporting items.

But beyond and beneath—literally beneath—this general conclusion, there is the condition of cultivated soils, for on this depends the quality of all that we eat. It is virtually certain that milk, eggs, and vegetables produced from impoverished, de-vitalized, de-mineralized or over-stimulated soils will not be *whole*: they will be to a greater or lesser degree deficient.

If, therefore, the superficial press and commercial writing-up of vitamins has made many men and women anxious as to whether they need liver-extract or more eggs or cod liver oil, or the latest vitamin concentrate, or the juice of six lemons a day, it is to that extent distracting and even disastrous. Let English people insist on having honest food, whole food, fresh food, especially home-grown potatoes, vegetables and salads, ripe sweet fruit, fresh raw milk, good butter and cheese and new laid eggs—all from sound sweet fertile soil enriched with all that has come from it. That will be fundamental food reform and will set moving a genuine revolution in many directions.

12.—A Pause to Consider our Ancestors

At this point in our progress it would be well to deal with a query that many a reader will, I hope, wish to raise. It is this: Since what has been discovered (in the matters thus far discussed) during the past half-century was presumably unknown to our ancestors, how was it the human race avoided making disastrous blunders? On the other hand, why has there been disease in all recorded history? Judging by the abundant evidence obtained by anthropologists and geologists, mankind has lived on this planet some hundreds of thousands of years, while the beginnings of civilization are steadily retreating into the remote past as research proceeds.

To go into this two-fold question fully is impracticable inside the scope of this book. But the following facts should help the reader to see where the answers can be found:

1. Except possibly in periods of strictly localized luxury, nowhere and at no time did human beings eat the deficiency foods that have come into vogue during the past 150 years.

2. The same holds good as regards the breast-feeding of babies as contrasted with the modern bottle-feeding.

3. Food, however ill-balanced it certainly was in particular areas or periods, was the whole thing and therefore contained all the minerals and other constituents derived directly or indirectly from the soil.

4. With the exception of salted, smoked or dried meat and fish, stored grains, wine, ale and mead, food was fresh local produce. There were no chemical preservatives, no pasteurising of milk, no cold-storage devices for moving food from one continent to another.

5. Soils, however imperfectly cultivated, were not exhausted by either over-cropping, specialized single cropping or highly stimulating but ultimately pernicious chemical manures. When the primary requirements of soil-husbandry were neglected, through ignorance or stupidity, the desert came in—as it is now doing in North America, South Africa and Australia, and as, unless the Soviet rulers come to their senses in time, it will come into the fertile Ukraine.

6. Even where there was little fresh vegetable food and very little fruit—as in England in the Middle Ages—the herbal lore of the folk encouraged the medicinal use of many

wild plants, whose minerals and vitamins helped to redress the balance.

7. Serious nutritional errors, if continued long enough, led to national degeneracy and destruction, with no 'social services' to patch things up and little or no sanitary science to prevent the epidemic diseases to which such malnutrition contributed.

8. Only the most constitutionally robust children were able to survive the harsh and often grossly insanitary conditions that prevailed in Britain, Europe and many parts of Asia right down to the nineteenth century. Those that reached maturity were therefore less prone to suffer unduly from one-sided or over-stimulating food and drink.

9. The most virile and healthy people have always been those who were either actively engaged in husbandry and living on its fresh unspoiled products (as can still be seen in rural France, Bulgaria, Spain and Portugal, and in the un-westernised parts of China), or were nomadic raiders stealing these products, or were hard-faring soldiers subsisting on meagre rations of unspoiled food, as in the case of the Roman legions at their prime.

10. Nor were our ancestors entirely devoid of that residuum of accumulated experience called common sense. They could draw conclusions even though superstition so often muddled their minds. (And are we to-day free from superstitions quite as foolish?)

So much for the first query. Now for the other : the diseases and pestilences.

1. Human history is of necessity overcast with blunders. Every blunder exacts its price : only so is wisdom to be won.

2. Whenever towns and cities grew up with no one to see the importance of the most elementary disposal of garbage and excrement, toxic results were inevitable.

3. When in Britain personal and domestic cleanliness departed with the Romans, not to return for some fifteen centuries, the good resulting from unspoiled food was inevitably negated to a greater or less extent by bodily dirt and vermin.

4. When fens, bogs and swamps were still a considerable feature of any country, their miasmatic products, especially in very hot summers or abnormally mild winters, cannot but have played their part in producing conditions favourable to agues and other fevers.

5. And once an epidemic got going, primitive fear, superstition and mass hysteria rode the terror as witches were believed

to ride the storm, and as our gutter-press rides a smallpox scare.

6. When through the winter fresh food was scarce and salted fish and meat, and possibly dried peas and beans, were probably the only supplement to wholemeal bread of wheat, rye or barley, the results were inevitable. Scurvy and even leprosy were widespread in medieval England. Stone or calculus in Stuart and Georgian times was a common ailment, for meat and bread* *with insufficient vegetable-food* only too readily induce this ailment.

It must be remembered that human food-habits until modern times have always been conditioned by locality. The Esquimaux subsist on seal-flesh and blubber because they cannot get anything else. The finer types of Polynesian, until demoralized by Europeans, lived on wild fruits (including the banana), coconut and its 'milk,' vegetables of the tuberous type and fresh fish from the surrounding ocean. The peoples who through many successive phases of history have lived around the Mediterranean—from Spain in the West to Palestine in the East—have, as far back as can be traced, lived chiefly on grains, flesh, milk, cheese, wine, olives, honey, grapes (and other fruits), and vegetables—the onion, cabbage and carrot having their genetic roots in a remote part. For some 4,000 years the Chinese people have cultivated a rich variety of vegetables, a number of fruits, rice (not the feckless polished stuff sold in this country), pigs, fowls, and the soya bean, but not cattle, and therefore have had no milk, butter or cheese.

Before the dawn of cultivation and of herding, men must have eaten whatever they could gather or catch that did not produce immediate discomfort. There may have been tropical or sub-tropical regions where wild fruits and nuts provided some primeval peoples with all their food; but this cherished belief of present-day adherents of the 'golden age' fantasy is supported by no tangible evidence.

Even the anthropoid gorilla can no longer be brought in as an argument for the fruit-and-nut theory, for this terrifying animal has been closely observed in its native forests by an intrepid Belgian investigator. It wanders far and wide in search of the succulent green shoots of wild celery and

*It has now been established that grain-foods are not the best staple for promoting sound teeth, owing to their small calcium content as compared with potatoes and other vegetables. (Witness the perfect teeth of the inhabitants of isolated Tristan da Cunha, who are compelled by circumstances to subsist almost solely on potatoes, milk and fish.)

only when it cannot get this does it eat other things, such as grubs, insects, fruits and even nuts.

In short, the science of human nutrition cannot be built on attractive theories and wish fulfilment fantasies; it must have its roots in observed facts, it must aim at finding out *what sort and quality of food promotes the best kinds of men and women*, both in mind and body. The food that makes the uncivilized Zulu or Masai a fearless but blood-thirsty fighter is not likely to be such as will make the Englishman cool-headed and intelligent. The food that helps to make a pot-bellied city-man a revolting parody of humanity is unlikely to build a virile and beautiful race.

In Britain we do not live under tropical skies—fortunately. Monkeys do not throw down nuts upon our heads when we stroll in the city park or walk through our unrivalled woods of beech and oak and ash. It is our own regenerated soil that should feed us, it is the foods native to our climate and soil that we must cultivate and enjoy. We must once more thrust our human roots down into our national heritage. Only so can we turn our sub-health into fullness of life.

13.—Was There a Golden Age?

This chapter can be skipped, but it will interest some readers.

TRADITIONS and myths, no matter how ancient, are not to be dismissed as having no historical basis. Tradition, like a river, carries many ingredients: the water comes not only from some distant primal spring, but from many subsequent tributaries feeding the main stream, and its flow gathers a medley of silt, pebbles, leaves, litter and life; while myth is a poetic or symbolic representation of formative beliefs and traditions. Mankind is incurably pictorial and can never be quite happy when fed on a diet of metaphysical abstractions.

Language itself consists of symbols, for even the greatest words are but shadowy representations of sensory, emotional and subjective experiences. Words have little life in themselves: they register the development of experience and reflection, effort and aspiration. The deeper the realities to be expressed, the greater the difficulties of language. This is why poetry, including genuinely poetical prose, can succeed, because it uses words in a strictly magical way. If it does not, it is not poetry, but verse. Hence, too, in the past, parable, myth and symbol were used by most of the earlier leaders and educators of the race.

The traditions and myths, fables and folklore, of ancient peoples, and of still surviving primitive peoples, exhibit certain similarities in the midst of great differences. Among the similarities is the belief in a far-back age of innocence, a Golden Age of perfection from which there had been a 'fall', with disaster and continuing woes as its consequence.

Among western nations the ancient myths of innocence and fall have naturally exerted a profound influence, since they are embedded in the opening chapters of the Bible; and although methodical scientific research along several lines has established the general conception that the development of living forms on this planet has required millions of years, and that immense æons of cosmic and planetary change preceded the beginnings of life, the powerful imagery of the Hebrew myth remains a part of our mental framework, even in those who reject Genesis i and ii as 'childish fairy-tales' or 'priestly inventions'.

An interesting and significant example of the continuing power of that ancient prose poem—and this is the principal reason for introducing the subject here—is the way in which

the Garden of Eden is continually cropping up in books dealing with food. Usually it is little more than an assumption that mankind began as a fruit-eating pair, but 'fell' into a more varied dietary; or some verse or fragment of a verse from Genesis is quoted as sufficient in itself to support a claim or an argument. But occasionally the language of Genesis is rendered into more or less scientific terms: the poetic simplicity and appealing naiveté of the Hebrew story is discarded in favour of geological and anthropological phraseology, but the central idea is retained: primal perfection and fruit-eating, followed by a fall into disease and degeneracy through the eating of grains, vegetables, milk, eggs and flesh.

The most striking example of this procedure in recent years is to be found in the books descriptive of the naturopathic system, called cosmotherapy, developed by Edmond Székely. This literature asserts that

"the dominant species has passed successively through the following evolutionary changes: amœba, fish, amphibian, mammal, monkey, anthropoid, prehistoric man and finally man (nomad and sedentary) himself. From the point of view of diet, the species has passed through four different phases: (1) Carnivorous, when it lived in the water; (2) Herbivorous, when it lived on the primitive steppes; (3) Fructivorous, when it lived in the forests (the golden age of man; and (4) Omnivorous, since the great cosmic cataclysm known as The Flood.

"The Flood marks the end of the third temperate period geologically and the beginning of the last glacial period. This third temperate period was the age of *Homo Sapiens Sylvanus*, whose ancestral home was Central and South-Western Asia, which then enjoyed a sub-tropical climate, approximating to the climate found on the Tropics of Cancer and Capricorn to-day. At that time Central Asia was covered with immense ancestral forests. In these forests of vast trees over 400 feet high the semi-arboreal anthropoids who preceded *Homo Sapiens Sylvanus* descended to the ground from the trees and remained faithful to the forests and also to their fruitarian régime, even after they dwelt exclusively on the ground."

"... The Flood destroyed the excellent climate and favourable forest environment and drove *Homo Sapiens Sylvanus* to adopt the bad and unhygienic habits of his pysolithic cousins" [in Australia, Africa and Europe].

However such scientifically-phrased statements may impress the ardent seeker after health-knowledge, for those with a

moderate acquaintance with the results of modern geological, biological and anthropological research they cannot but provoke comment and criticism, and this, of course, without in any way reflecting on the value of cosmotheapy in world Nature Cure, or on the sincerity of its promoters.

It should be observed that while the Eden myth, with its lovely episode of God planting a garden and finding no one to tend it,* is transformed into 'immense ancestral forests' of 'vast trees over 400 feet high' in Central Asia, in which anthropoid apes came down from their towering arboreal abodes and somehow or other developed into Wise Forest Men (*Homo Sapiens Sylvanus*) and brought in 'the golden age of man,' the Flood story is turned into a 'cosmic cataclysm' that spoils both the climate and *Homo's* fruit-diet.

One cannot refrain from noting: (1) the omission from this evolutionary tree of birds and insects, and of the bacteria of the soil that play an essential part in plant-life; (2) the ascription of carnivorous habits solely to sea-creatures; (3) the assertion that anthropoid apes are fruit-eating animals; and (4) the statement that after the Flood, or rather the cosmic cataclysm, man became universally omnivorous.

Birds are certainly vertebrates and therefore a branch of the dominant species, while insects and bacteria are an integral part of the web of life, and land animals of carnivorous habits have been traced far back in planetary life. Courageous and painstaking observation of the African gorilla in its ancestral tropical forests has proved that this animal does not subsist solely or even chiefly on fruit—though the spoiling of the climate by the said cosmic cataclysm may have perverted apes, too. While the races of mankind have certainly not been uniformly omnivorous, food habits differing widely according to local conditions and social and cultural development.

The strangest feature, however, to my mind, of this conception of human evolution and habit is the omission of cultivation, which according to Genesis was 'in at the beginning,' since the Lord God Himself planted the first garden. Yet there is overwhelming evidence in support of the belief that man's cultural advance grew directly out of, and was vitally determined and moulded by, his cultivation of the soil.

A race of men wandering in ancestral forests and living

*One rendering from the somewhat obscure Hebrew of Genesis ii, 4-7, adopted by both Ewald, Shrader and Martineau, runs: "On the day that the Lord God made the earth and the heaven, when no plants of the field were yet in the earth and no herbs of the field were yet sprouting, because the Lord God had not sent rain upon the earth and there were no men to till the ground, and a mist used to go up, then the Lord God formed man and planted a garden eastward in Eden."

entirely on the wild fruits of gigantic trees might conceivably be innocent and healthy animals; but that they would develop their inherent intellectual, æsthetic and spiritual potentialities without the stimulus of all that is involved in husbandry, the taming and herding of animals, the invention and use of wheel and boat, and levering and cutting tools, and the discovery of fire seems to me incredible, unless indeed one is to regard the whole of human history as one vast, meaningless absurdity.

Such a forest-race that made no stone or brick buildings, and had no knowledge of metals, would 'leave not a wrack behind,' except a burial ground with its bones. Skull-measurements in any case are inadequate for the purpose of estimating intelligence. It is not the size of a brain that is important: it is the degree to which its cells have been awakened into activity. The Cro-Magnon people of Europe—at a much later date than the purely theoretical Asiatic golden age people—must have been splendid creatures physically, but there is no evidence that they were exceptionally developed mentally, in spite of all the brilliantly imaginative projection by Mr. A. M. Ludovici in *Man's Descent from the Gods*.

This is not to accept the all-too-easy view of human history as one long and unbroken climb from little running lemurs up to Mr. H. G. Wells. There is evidence enough of repeated rise and fall. Prehistoric earth-convulsions may well have blotted out civilisations of which there is no trace except what either legend reflects or theosophical dogma affirms.

As for the Flood story in Genesis—which clearly derives from Babylonian sources, though rendered into more majestic form by the makers of the Hebrew tradition—Sir Leonard Woolley's discoveries at Ur have provided direct evidence of what must have been a disastrous but localized inundation some 4,000 years B.C. Beneath the solid clay laid down by that Mesopotamian flood he found abundant tangible evidence of settled city and agricultural peoples. That catastrophe was not 'cosmic.' There is no evidence that it changed the climate of the Euphrates watershed, nor that it induced an arboreal fruit-eating people to forsake their innocent ways, nor would they leave behind them stoppered clay bottles and the ruins of brick houses.

That fruit was the original food of man is not suggested by the authors of Genesis I. "Behold," says Jehovah to Adam, "I have given you every seeding herb and every tree in the world which is seed-bearing fruit; to you it shall be for meat." In regard to this so frequently-quoted passage, it is well to

remember that the first five books of the Bible were put into writing between 600 and 500 B.C.—dates which should be compared with that of the inundation in Mesopotamia some 3,000 years earlier—and embody the religious national epic or *mythos* of an established priesthood whose task was to utilize various strands of tradition in order to give form and direction to a long-settled nation.

That this quoted passage cannot sustain a literal interpretation is clear from the simple fact that many wild seeding herbs and wild fruits and nuts are either poisonous to man or merely acrid or otherwise disagreeable and unsuitable as food. Most people to-day seem to be unaware of the fact that the majority of our wonderful vegetables and fruits have been developed by human patience, skill and industry from wild and bitter originals, many of which can still be found.

From a psychological point of view—and psychology is invaluable for tracking down theories to their unconscious sources—it seems likely that the perennial and well-nigh universal myth of a far-back Golden Age and ensuing disaster has its origin partly in the natural desire to find a reason for present miseries and thus make them more endurable, and partly in that dark retreating tendency in us that, shrinking from the total challenge of life—from “the upward calling of God,” as St. Paul so finely put it—would drag us back towards the safety, warmth and innocence of the child in the womb.

That men at all times should dream these dreams is easy to understand. What is so rarely realized, particularly by the many who get such philosophy as they have from ‘popular science,’ is that the achievement of the authors of such naïvely noble and poetic myths as the story of Adam and the Garden, Eve and the Snake, Flood and Ark and Dove was in this: that they sublimated the sufferings and tears of the race and transmuted them into images of sublime tragedy.

If we are to appreciate the Hebrew epic of the creation and fall of Man to the full, we must place it alongside the ancient non-Jewish myths of fertility and decay, of suffering, heroic and god-like leaders, of sun and moon and sudden flood, and ponder them all as the formative poetic images that helped to lift the groping primitive mind towards courage and faith; that prepared it for the human task of growing to full intellectual, moral and spiritual stature; that ritualized the basic rhythms of earthly existence and, as in Northern India, Sumeria, dynastic Egypt, ancient China, Inca Peru and the pre-Christian Mediterranean cultures of Crete and Etruria, wove into the racial mind a sense of the natural cycle of life

and death and new life, of the revolving seasons, of the waxing and waning moon, the saving and sowing of seed, the sprouting grain and multiplying herds, the harvest of maturity and the return of all living forms in wholesome decay to the earth.* Brahma the ground of all existence, Vishnu the active, creative and fertile principle, Shiva the destruction and necessary death of form, form to be burnt or trodden under foot so that life might again spring as the bright Phœnix from the ashes of consuming fire. Ra the golden sun, giving life; Isis the Earth-Mother bearing the sacred Horus, child of hope.

It may well be that there was a primal fall, either the pride of Lucifer, star of the morning, or of Prometheus stealing fire from heaven, or the purposeful descent of spirit into the web of matter and sense.

It is certain, too, that after our planet took definite shape there were huge upheavals; our chalky downs were once the bed of an ocean, our granite hills the fruit of gigantic eruptions. That such tremendous changes may have occurred after men in one region or another had reached a stage of civilized society is suggested by the flood-myths of so many peoples.

It is also clear that if there were men on the earth when its axis was, by some planetary convulsion, changed from being vertical to the plane of its path round the sun, such an event would exert far-reaching alterations of climate. But who is there who would seriously wish it otherwise? That progression of seasonal changes in the temperate zones was, and in every truth has ever been, of incalculable value to the human mind. What though it may have led to the polar ice-caps creeping down more than once over what is now England, Russia, Canada, U.S.A., Germany, France and Northern China, it was a god-like shaper of mountain and valley and river-bed—Thor with his hammer!

Let those who dream of idyllic tropical skies and changeless ancestral forests as the perfect home of a perfect race—in the past or in the future—live in equatorial countries if they so choose. The teaching of history is that the vertical sun and the rank, swarming fecundity of the virgin forests of the tropics have not yet given birth to any single one of the greatest achievements of the human spirit.

*For a brilliant elucidation of this underlying principle in the 'Mosaic' national ritual, see *Logic Taught by Love or Rhythm in Nature and Education*, by Mary E. Boole. (Daniel, 2s. 6d.)

14.—Flesh-Food and Vegetarianism

The word 'vegetarian' derives from the Latin *vegetus*, meaning vital. In practice it means living solely on foods from the 'vegetable kingdom, while lacto-vegetarianism means the combination of vegetable-foods with dairy products.

Rarely has there been a sadder example of the adage, 'Give a dog a bad name and hang him.' For from the onset of the vegetarian movement (*c.* 1840) the word naturally conveyed to the unconverted the idea of 'living on vegetables.' Since it is only in the last ten or twenty years that English people have allowed the idea to enter their minds that salads have all-the-year-round possibilities, vegetarianism suggested little more than pea soup, boiled greens, mashed potatoes and rice pudding—a misconception that was not removed by the old-style vegetarian restaurants.

Vegetarianism in England originated in the intrinsically noble humanitarian impulse that took shape towards the end of the eighteenth century. It owed much to the 'back to nature' French philosopher, Rousseau, and to the English poet, Shelley. It was one of the forms that an increasing sensitivity to suffering and brutality took at that period of revolutionary idealism and was a close relative of the romantic view of 'Nature' of which Wordsworth was the most famous exponent.

Its strength has always consisted in its reverence and tenderness towards the more sentient animals, its weakness in the two-fold temptation to clutch at any argument or theory that offered support and to view 'Nature' through tinted spectacles.

Its importance so far as a science of nutrition is concerned was that it stimulated both lay and medical enquiry into the differing properties and constituents of foodstuffs, and into the eating habits of other nations, past and present.

Perhaps its greatest defect in practice has been that so many tender-hearted vegetarians have been content to discard flesh-foods, and sometimes dairy products as well, and have stopped there; with the result that, English food-habits being what they have become during the nineteenth century, these kindly people were often no healthier than the contemptuous flesh-eaters around them. When this fact was tactlessly mentioned in their presence they would insist that their self-denial was based on ethical or religious principles and not on a 'selfish desire to be well.'

Alongside this at one time quite common failure to realize the essential nature of health as wholeness, there also developed a number of singular confusions.

For example: the humanitarian and æsthetic revulsion against the cold-blooded slaughtering of animals has led many vegetarians to speak of flesh-food as impure in itself, and as conducive to 'impurity' in men and women; even the seed-clot must be removed from a hen's egg because either (*a*) it would have become an animal, or (*b*) it carries the sexual passion of the cock! And then, finally, from all this confusion of ideas there sprouted the completely unnatural notion that no food could be wholesome when cultivated on soil fed with animal manure.

From a psychological point of view these baseless beliefs are illuminating. To speak of flesh and germ-cells as impure, and to argue that their assimilation into the human body excites animal propensities, is to expose subconscious fears and tensions. An animal is not impure, either in its tissues, its germ-cells, or its activities—unless it be diseased. Animal propensities—by which are usually meant sex-hunger and ferocity, though, in fact, they include playfulness, pride, sureness of instinct, and either grace, strength or speed, qualities in which most English people are distressingly deficient—are innocent in themselves. No ingredient in the complex nature of man is impure in itself. But the greater the development of consciousness, the greater the tension arising from the emergence of moral, æsthetic and spiritual values, and the greater the risk of losing one's balance. And fear of life and of losing balance or control lies beneath all these fancies about the impure nature of animal flesh, its inflammatory effects on the emotions and the unhealthiness of animal manure.

The simple truth on these three points can be summarised as follows:

1. Inevitably there are biological waste-products in an animal's blood and tissues (but not in its eggs or in its milk) at every moment of its life, as there are in human bodies. When an animal is killed, these waste-products, which are similar to human waste-products, are arrested in their movement towards excretion. The chief eliminative organs, bladder and large bowel, are not eaten; but the excretive process begins *in the tissues*. The traditional Jewish procedure in slaughtering was based on a partial understanding of this fact; but to drain the living blood from a dying animal removes only such waste products as have left the tissues. The only impurities in the freshly killed flesh of a healthy animal or fish

are these waste-products of living cells. (The concentrated meat-extracts that have been so persistently exploited by commercial interests during the past fifty odd years contain a concentration of these animal waste-products. A typical example of mistaken ingenuity.)

2. Any inflammatory effects of flesh-eating are due, not to the animal's natural impulses, but to (a) the irritating effects of the above waste-products, and when present (b) the decay-toxins which develop in every organism when it dies. The first of these is unavoidable; the second arises when flesh-food, unless dried or preserved, is eaten several days, or even weeks, after the creature was killed. Some types of flesh-food decay more rapidly than others: for example, shell-fish and rabbit. Under present-day conditions, even after allowing for rapid transport, it is difficult for townspeople to get really fresh meat, poultry and fish. For the chilled beef and mutton, carried half across the world in conformity with a false financial economy, is not freshly killed, in spite of the partial check to decay by refrigeration; whereas, in the traditional country life of England such meat (or fish) as was eaten was fresh, unless it was salted or smoked for subsequent use. The same holds good among active open-air races who subsist largely or even entirely on flesh-food.

3. Nothing could be a grosser violation of nature's wholesome economy than to waste either animal or human excreta. Our sprawling nineteenth and twentieth century cities and towns, having sucked the greater part of the nation away from the land, perforce adopted water-sanitation. But we cannot escape the fact that this has involved a hundred years of gigantic waste, which chemical manures cannot replace: one more example of the evil results of the top-heavy over-urbanized social and economic structure which the western nations have allowed to develop.* It is not animal or human excrement that is impure: it is its thoughtlessly hurried application to growing crops that encourages pests and disease. There would have been no soil to cultivate anywhere on this planet if the no-animal-manure fantasy had wriggled its way into the cosmic process; for all soils consist of decayed organic matter mixed with disintegrated primitive rock-material. Nature, who is so often on the lips of 'clean culture' fanatics, has no fussy notions about 'pure' and 'impure', and if we neglect to study natural process disaster is certain.

*For a masterly and constructive survey of the choice before Great Britain see Prof. Stapledon's magnificent work *The Land Now and Tomorrow*, (Faber, 1955.)

Reference must also be made to certain exaggerations that still persist in vegetarian literature.

One of these is the statement that certain races were or are vegetarian. But while some peoples eat much meat and others very little, it is very difficult to point to any instance of large-scale national, as distinct from religious, vegetarianism.

Another is the assertion that peoples who live chiefly on flesh-food—the polar Eskimos, for example—are degraded and unhealthy as a consequence. But the evidence of many modern visitors to Greenland points in the opposite direction. For example, McCullum & Simmonds, in *The New Knowledge of Nutrition* (1929), points out that

“The fact that the Eskimos of this polar tribe have such excellent physique, hair and teeth, and such superb health without any trace of scurvy, rickets, and other evidence of malnutrition, is interesting in the light of their restricted and simple diet.”

And many illustrated articles in various journals of recent years have revealed the high spirits, hospitality, good temper and artistic skill of these people. What will happen if, and when, the Greenland Eskimos adopt American ways as has already happened in Iceland. The work cited above says:

“This island was settled in the ninth century by colonists from Ireland and Scandinavia, who took with them cattle, sheep and horses. Their diet was practically carnivorous for several hundred years. Martin Behaim (quoted by Burton), writing of Iceland about A.D. 1500, stated: ‘In Iceland are found men of eighty years who have never tasted bread. In this country no corn is grown, and in lieu, fish is eaten.’ . . . Rickets and caries of the teeth were almost unknown in Iceland in earlier times. . . . The health conditions were good . . . until after 1850. . . . During the last half century caries has steadily increased in Iceland.”

And why this dental disease? Half the population now lives in trading stations and *makes free use of imported processed foods, such as white flour and refined sugar.*

Facts like these must be faced. Vegetarianism, or rather lacto-vegetarianism, holds the future: of that I am certain. But it can only prejudice its very strong case by well-meaning mis-statements, wish-fulfilment fantasies and more or less unconscious resistance to reality.

Let it be said at once that, although some of these misconceptions and delusions still obstinately persist, even in

quarters claiming both science and intelligence, the past twenty years or so have witnessed a considerable change. Probably a majority of present-day vegetarians are acquainted with the elements of right nutrition, while many are strongly motivated by the conception of health as integrated wholeness.

The best type of vegetarian insists that when an individual discards flesh-foods on principle he is more likely to make a success of becoming healthy than if he abstains in fear of disease: which is sound so far as it goes. But the practical issue, so far as restoring the vigour of the nation is concerned, is in another direction.

Approach any ordinary Englishman with a condemnation of killing animals for food and he will want to argue at length, quite apart from his natural resentment against anyone who preaches at him. As strategy for widespread success, vegetarianism fails and the word itself misleads.

To put it another way: the qualities of genuine sympathy for and imaginative insight into the beauty, pathos and intrinsic interest of animal life—as distinct from the nauseating sentimentalism that too often masquerades as these qualities—are, in their very nature, of slow growth. They belong to the spiritual unfolding of humanity. But the more objective realities of honest food and fertile soil, with their immemorial associations with husbandry and herding, can be made to appeal to all but a few disintegrated high-brows, top-heavy with ‘science’ or ‘culture’ and lost to the strong sound primal values of the living earth.

If it interests the reader to know it, I have been a ninety-nine per cent vegetarian—or rather, lacto-vegetarian—for more than thirty years.

But, as I have said time and again in lectures and in articles, a nation that lived on sound fresh unprocessed food which included animal-flesh could not but be in a far finer condition than a vegetarian nation that continued to consume the baneful refined processed de-mineralized food-stuffs that modern advertising continually urges everyone to eat.

That is my position. It will not please some, but this book is not written to please either the fiery fanatic or the complacently virtuous, but to awaken the slumbering common sense of the people of England.*

* I am in reality paying a subtle compliment to Scotsmen, Welshmen and Irishmen by thus tacitly placing them outside the region of torpor.

15.—Gathering up the Threads

It is time to gather up the threads.

We began, let me repeat—at the risk of being a bore—not with a theory but with the actual make-up of human milk. As produced by the mammary glands, this is a complete food for the baby. The make-up of such a living secretion clearly has many thousands of years of what can with accuracy be called biological experience behind it. Its contents must therefore provide invaluable directions as to what constitutes sound human nutrition, due allowance being made for the differences between infant and adult existence.

Our next step was to look at newly formed teeth and to draw the completely rational conclusion that the shape of these teeth indicates food requiring either to be bitten into or chewed, or both.

At first sight, this seemed to contradict the tip we got from the large amount of water in human milk, until one found that all fresh vegetables and fruits, whatever their degree of crispness or hardness, consist of a great deal of water—from 75 to 98 per cent.

And this led to the classifying of foods in general use according to the amount of water they contained. We found that all non-animal foods as are in fact *seeds** are very concentrated—that is, contain next to no water; they have to be, for the living germinal cell-group must be provided with a compact larder for its start in life. Consequently, while the fruits, leaves, stems, roots and tubers of plants are in fact largely water, the peas, beans, nuts and grains, which are the seeds of plants, are concentrated.

If the tips we got from human milk and from the shape of human teeth were correct—that food should be mostly watery and *also* of a texture calling for biting and munching—it followed that the *major proportion* of our meals was more likely to have good results if it was watery bulk rather than concentrated bulk. Thus, for example, potatoes would be superior to bread, celery to beans, apples to nuts—that is, so far as the *bulk* or larger part of the daily meals was concerned. This is not to say, of course, that nuts or beans or good bread are to be discarded or regarded as unwholesome! The sole point here is: what kinds of food are best for providing the bulk of our meals. One step at a time.

*Using the word in the popular sense, since the germ-cells are only a small part of the 'seed.'

But we could not leave the matter there, because adult life involves greater demands on the body than baby life does. The digestion of the growing child and the adult is fully equipped for dealing with somewhat less watery and more nutritious meals than milk as such provides.

So to ensure sufficient protein for repair, sufficient fat and sugar for warmth and energy, the proportions need to be increased. Moreover, starch (which is not present in milk) can be converted by digestive processes into sugar from childhood onwards.

But this is just where more or less civilized humanity has so often gone off the rails, by consuming *to excess* those types of food that are relatively rich in protein (meat, fish, eggs) and relatively rich in starch (grain-foods); while the vastly changed conditions induced by the Industrial Revolution during the past 150 years have brought into general use the baneful novelty of highly refined and concentrated deficiency foods, notably sugar, white flour, polished rice and cornflour, the worst part of their deficiency being the loss of mineral salts.

Finally we found that the mineral elements in human milk were predominantly *alkaline*. This was a direct indication that an over-plus of alkaline minerals was essential for sound nutrition.

And this led on to the fact that foods differ very widely in their mineral content. Grouping representative cultivated vegetables, fruits and grains in terms of their mineral contents, we found that vegetables are by far the most alkaline, fruits much less so, and grains a long way behind both. So that if the proportion of alkaline to acid minerals in human milk is a sound tip, it follows that we need fresh vegetables more than fruit or grains. The mineral elements in meat, fish, eggs and cheese were discussed in relation to this particular point.

If we observe that simple scale or proportion and pay due attention to the other conclusions reached in our progress, we shall get the essential alkaline over-plus, we shall get the needful protein, fat, and sugar (or starch) in the best forms, and the *major part* of our daily meals will be as watery in make-up, but not sloppy, as is that remarkable and complete food which the human mother gives her baby.

And in so doing, we shall get suitable fibre and all the vitamins, known and unknown.

These are the main threads we have drawn—though other contingent subjects have been discussed in intervening chapters. It now remains to make them into some sort of useful pattern so that we can enjoy better health as the result of enjoying better food.

16.—How to Begin Improvements

THE following suggestions do not constitute a system, nor are they expressions of the author's opinions or theories, but follow naturally from all the facts reviewed in the preceding chapters.

(1) Three Meals a Day

By *meals* is here meant anything that starts digestion, however small the amount.

This means omitting biscuits or bread and butter with early morning tea, if this is taken, and cakes or ices with mid-morning coffee, and bread and butter, jam and cakes with afternoon tea.

It means replacing foody beverages at bedtime with one of the alkaline tonic drinks given on a later page, or with a little hot water, preferably softened.

It means laughing away the silly modern craze for chocolates, sweets, milk and other between-meal snacks.

Where the custom has been to make 'tea' a substantial meal at 6 o'clock or thereabouts, with a late supper following, the two meals can be merged into one sensible evening meal, and the drink of tea taken earlier by itself.

(2) Weed out the Deficiency Foods

This is certainly the most difficult for modern populations, yet if it is not tackled, the benefits resulting from the other points here set out cannot but be heavily discounted. But the reader who has carefully noted all that has been said on this subject thus far will be supported by reason in attempting to overcome his acquired tastes, or rather cravings.

To begin with SUGAR. Where the craving for this is deeply set, small amounts of the old-fashioned light-coloured Barbados sugar, maple sugar and good honey can be used on the table, and also in the kitchen, as well as brown cane syrup, treacle and maple-syrup in place of 'golden syrup' and corn syrup.*

Of the canned and bottled fruits, pears and pineapple have a much lighter, that is, less heavily sugared liquor, than other kinds.

—Excellent unsweetened *ripe* fruit-juices, both canned and bottled—orange, grape, pineapple, grapefruit, apple, &c., are

*Glucose is a highly artificial extracted sugar. Its immediate stimulating effects conceal its ultimate results. It can justly be termed a passing medical craze.

sometimes obtainable and can replace the sugared squashes, cordials, powders, crystals and essences that have been so cleverly exploited during the past thirty or forty years.

Since the conventional tea-meal is to be 'faded out'—see [1] above—there will be less call for jam, which, even when home-made, is half white sugar. Orange and grapefruit marmalade have at least this in their favour: that the peel of citrus fruits contains very valuable elements.

But the best way to supply the body's sugar-needs is to make regular use of the excellent dried fruits (all tree-ripened) in their full variety and prepared by soaking or simmering, and of ripe sweet English fruit in season, and of ripe bananas, raw or lightly baked (see page 102).

And then as to FLOUR, and grains and cereal products.

Finely ground wholemeal can at first be mixed with white flour in the kitchen until the latter is discarded for good.

BROWN RICE from Health Stores can replace the 'polished' article—not that rice is really native to English people.

MACARONI, SPAGHETTI, VERMICELLI and other forms of what is truly called 'paste', are not only smooth, unchewable forms of deficiency flour, but are alien to English life. But wholemeal macaroni is now supplied by Health Stores.

CORNFLOUR, excellent for making home-made 'stickphast', has no exact substitute, but it is not in the least a necessity except for the manufacturers of those most un-English substitutes called custard powders. But granulated MAIZE MEAL from the whole corn is obtainable from some Health Stores.

SAGO is the washed pith of an Eastern variety of palm and is much inferior to home-grown wheat, barley and oats.

TAPIOCA is derived from the root of the manioc plant and is almost pure starch. Goodness knows why anyone should really want to swallow it, for it cannot be masticated, and is practically tasteless.

Genuine Scotch POT BARLEY is now supplied at many Health Stores and should replace 'pearled' or 'pearl' barley.

OATMEAL fortunately has escaped the craze for processing and refining. By far the best way to take it is in the form of unsweetened oatcakes.

As to BREAD, there are now many varieties containing more than white flour, but bakers will not make really good wholemeal bread unless there is a firm demand. Such bread should be made of finely ground meal and yeast, with little or no salt. If English life should come to its senses, financially, socially and culturally, there will be a revival of home-baked bread. But while the present congested and over-sedentary

town and city existence of to-day continues, it is wise to eat more potatoes and less bread of any kind (see chapter on Roughage).

There are many varieties of fine WHOLEMEAL BISCUITS now to be had at Health Stores; also OATCAKES and RYE CRISP-BREAD.

(3) Establish the Ample Daily Salad

For reasons fully set out in this book, this is possibly the most vital of all changes required in national habit—not only when lettuces and tomatoes are cheap and abundant, but throughout the whole year. Practical instructions will be found on page 95.

Vinegar is acetic acid and its consumption involves a heavy attack on that all-important alkaline over-plus. If it must be used, let it be French wine vinegar; but it is better to use lemon or orange or grapefruit or pineapple juice, or a few pieces of the last three fruits, or of apple, to give the desired 'touch' to salads.

All the commercial salad creams except Chivers' Gold Standard Lemon-Juice Mayonnaise are far too vinegary to be recommended.

(4) Increasingly Replace Meat and Bacon with Fish, Eggs, Cheese and the like

To begin with, and especially if there is a deeply set belief that beef and mutton (and pig-flesh) are in some mysterious way essential to well-being, these may be continued *alongside the other changes here indicated*.

But many people are aware that the health of cattle and pigs is not all that it might be to-day, so that deep-sea fish (such as hake, brill, cod, halibut, skate, fresh herring) which comes from an as yet unspoiled ocean—has much to be said for it. So far from being a lighter or less nourishing food than meat, it is fully equal to the latter in protein.

Reference to page 109 will show how easy it is to get sufficient protein. But what is sufficient?

Except where poverty prevails, most English people consume more protein than their bodies need; but this does not mean that protein is not needed.

My own experience supports the results obtained by Chittenden in U.S.A. If it interests the reader, I may say that for a good many years past I have found that about two ounces of cheese and one egg—or their equivalent in other

protein-rich foods—per day is ample. That will strike many readers as a very small ration. A great many English people eat one or more eggs every day of the year *in addition to* red and white meat, fish, bacon, cheese; for it is not only eggs served as such, but the eggs freely used (when income permits) in various dishes, that come into the total. 'In comfortably-off homes, fish and meat (or poultry or game) are served at the same meal, and cheese is taken at the finish, which means that the total daily protein is often very high indeed.

Consumption of protein-foods does not fall as rapidly as income falls until the level of poverty is reached—the poverty, I mean, of one-third of the population of Britain to-day—for the skilled artisan, moderately well-paid factory worker, compositor, and men and women in similarly paid occupations usually eat both meat and eggs freely. But with incomes below this 'upper working-class,' protein drops heavily, and deficient starch-foods and sugar become the broken reeds on which the family leans.

So that I should rejoice if the sweeping away of this utterly needless poverty led to a greater consumption of whole foods such as fish, eggs and fresh meat by those now so horribly under-nourished, for nothing could be worse than existing chiefly on deficiency foods. Eminent nutritional reformers like Sir John Orr and prominent physicians like Lord Horder see this point so clearly that they tend to over-emphasize the value of eggs, milk and fresh meat and to ignore the fact that these are easily consumed to excess. The nation needs sound *all-round* nutrition, with fresh vegetables and dairy products as the central factors in building up an alkaline over-plus in every man, woman and child.

To return to the daily amount of protein-food, I can safely say that no one needs such three or four times a day, though some require a little more or a little less in amount at midday and evening meals, according to occupation, temperament, age, assimilative capacity. The essential point is to balance the protein-intake with adequate supplies of fresh vegetables, both raw and sensibly cooked.

One must remember that all whole foods contain protein, though in widely differing amounts (see page 105).

(5) Begin to Cook Vegetables less Wastefully

The simplest starting point is to boil vegetables quickly in as little water as possible, and without salt and certainly without soda.

If such vegetables as onion, turnip, leek, celery, cabbage, spring greens, flowering broccoli and kale are chopped or sliced *before* putting them into the saucepan, this alone makes it easier to use less water.

Any liquor left when they are ready should be kept in a covered bowl and used either for cooking the next day's vegetables or as a foundation for soup.

Good quality enamel pans are best for the above method. For a careful study of the reasons against the use of aluminium pans, based entirely on facts, see *Why Aluminium Pans are Dangerous**.

The Easiwork high-pressure cooker is a boon to those who have very little time for the kitchen.

Casseroles, whether earthenware or glass, are very good for all oven-cooked vegetables, savouries and sweets.

Not only potatoes, but parsnips, Jerusalem artichokes, turnips and carrots are excellent baked in the oven.

It is better to add margarine or oil when serving vegetables than to cook them in fat of any kind.

(6) Reduce or Avoid Salt

This applies both when cooking and after food is served. Its continual use blurs the palate to the real flavours of good food. Such mixtures as celery salt and onion salt help to break the habit. An unsalted yeast extract, such as Yeastrel, is most useful in the kitchen.

(7) Reduce the Strength and Frequency of Tea and Coffee

The refreshing effects or 'kick' of these now so popular beverages is due chiefly to an alkaloid. What happens, which can be verified by microscopic examination of living blood shortly before and soon after tea or coffee (and this applies even more so in regard to many popular drugs, such as aspirin) are taken is that the outward pressing tide of normal wastes and possibly stored irritants from the tissues into the circulating blood is arrested and reversed. This temporary clearing of the blood gives a sense of clearness and refreshment.

This question therefore resolves itself into the strength of tea and coffee and the frequency with which they are taken. It will be worth anyone's while to drink China tea in preference to Indian, partly because the former contains less tannin,

* C. W. Daniel Co., ls.

which tends to harden both food and digestive linings; and to get pale-roasted coffee, since the usual degree of roasting renders the contents of the coffee-bean more irritating. And further, to resort to these beverages less frequently during the day—or night!

(8) Avoid Unsuitable Mixtures

Experience will prove to anyone who has not one of those so-called cast-iron digestions that a sweet course without pastry or steamed flour pudding gives an easier, lighter feeling at lunch and dinner. This is partly because both white and brown flour are distinctly concentrated foodstuffs and therefore rather hard work on the stomach when it has begun work on a good first course; and partly because pastry is itself none too easy for the digestive juices to penetrate, since its preparation involves mixing fat of some kind very thoroughly into the flour.

It will also be found, in general, that uncooked fruit settles better, as a rule, before or after a salad course than if eaten, say, with bread and butter at breakfast, or at a cooked meal.

The drinking of sugared lemonade at *any* kind of meal is not calculated to help digestion. In fact, the less drinking with food the better.

As for the highly complicated 'charts' and 'systems' of food combinations that have obscured the sky of recent years, they are a reflection of the neurotic and dyspeptic condition of modern populations and do quite as much harm as good. The good is what results from simpler meals: the harm from fuss and worry.

The contrasted meals that here follow will, I hope, serve as illustrations of how these various improvements work out in practice.

17.—A Day's Meals Contrasted

(See detailed comments in next Chapter)

Items printed in *sloping letters* (italics) are DEFICIENCY FOODS or contain such.

Items printed in CAPITALS are specially rich in PROTEIN.

Items marked * are rich in ALKALINE MINERALS.

CUSTOMARY

Before rising: Tea, sugar.

Breakfast: BACON and EGGS,
White Bread or Toast, Butter, Marmalade;
Indian Tea, or Coffee, with sugar.

Midday: Cold MEAT or CHICKEN,
Boiled Potatoes or Small Salad* with Vinegar
and Oil,
White Roll;
Cooked Sour Fruit sweetened with sugar,
Rice Pudding or EGG CUSTARD.

Tea: Indian Tea, sugar.
White Bread, Butter,
Cakes made with *white flour* and sugar.

Evening: Meat-stock Soup,
White Roll;
FISH* with slice of lemon;
MEAT, with Boiled Vegetables served with
sauce thickened with *cornflour*;
Steamed Pudding made with *white flour* and
sugar, and served with *golden syrup*;
CHEESE with *white-flour biscuits*;
Coffee with sugar.

Bedtime: Malted FOOD BEVERAGE to combat 'night-starvation.'

NOTE.—Chocolate, Toffee, Mid-morning Snack, Aspirins and a Laxative often taken in addition to above.

17.—A Day's Meals Contrasted

(See detailed comments in next Chapter)

Items printed in *sloping letters* (italics) are DEFICIENCY FOOD or contain such.

Items printed in CAPITALS are specially rich in PROTEIN

Items marked * are rich in ALKALINE MINERALS.

IMPROVED

Before rising: Hot water.

Breakfast: Grilled Tomatoes* on Brown Bread Toast;
Oatcake or Rye Crispbread,
Butter,
Radishes* or Watercress,*
China Tea, unsweetened.

Midday: Ample Mixed Salad*† with Oil or Home-made Dressing,†
Grated CHEDDAR CHEESE;
Ripe, Sweet Fruit (uncooked), or Fruit Jelly made with Irish Moss* and tree-ripened dried fruits (e.g. Sultanas).

Tea: China Tea, unsweetened.

Evening: Cup of Vegetable Soup*† or 'Alkaline Cocktail';*†
FISH or EGG and CHEESE Soufflé† with two Vegetables* sensibly cooked;
Simmered Figs* or Dried Peaches needing no sugar,
Top of Milk.

Bedtime: Lettuce and Celery Juice*† or Vegetable Stock*† flavoured with Yeastrel.

NOTE.—For items marked † see recipes in Chapter 19.

18.—Contrasted Meals

Some Reactions and Comments

I AM wide awake to the risks I have taken in setting out two contrasted lists of a day's meals. The risk that someone will dismiss the heading "Customary" as incorrect; the risk that someone else will assume that the list headed "Improved" is my notion of an 'ideal diet' for everyone.

What I have attempted in the Chart is, of course, to *illustrate* what has been said in previous chapters. The first column could be varied in all sorts of ways; nevertheless it is representative of how the great majority of English people feed to-day. The second column could also be varied in all sorts of ways, but it is a straightforward example of how the first column could be greatly improved.

But there are further eventualities. Since it is quite common for a book to be opened at random, and since a 'chart' might well attract attention first, I will here set out some typical reactions in such circumstances—reactions not to the argument of the book, but to these contrasted meals as conned without reading the book.

REACTION 1.—"You can't expect a man to live on fruit and greens. I'm not a rabbit. I've got to use my brain [or muscles, or nervous energies, or voice, or legs, or steering-wheel, or wits, or strong-upper-lip] all day. It stands to reason.

My reply: Well, look again, and use your brain, wits eyes. It's up to a man, especially if he has a manageable upper lip, to read a book and not nibble at one page like a rabbit.

REACTION 2.—"Won't this diet weaken me [or make me too thin, or too fat]?"

My reply: Who said it was a *diet*? I didn't. You make me feel weak, but I shall recover my high spirits if you read the Introductory Chapter and note my savage attack on 'diet systems,' when what we all need, whether we are thin or thick, broad or narrow, is sensible and honest food to build up vitality.

REACTION 3.—"What is there to eat worth eating if you miss out bread and meat? And doctors all say we need sugar for warmth and energy."

My reply: Well, well, you've got enough energy to jump to funny conclusions. Of course if you *really* consider that bread and meat are the only foods worth eating, why don't

you try eating nothing else for say six months? That would be logical and you would learn a lot from so simple an experiment. But before undertaking so risky a business, why not read chapters 3, 4 and 5—or the whole book indeed? Quite a number of doctors will endorse practically everything in it. They are the wide-awake ones, bless 'em!

REACTION 4.—“I simply cannot understand your mania for salads. You may have persuaded yourself that you enjoy the same thing every day of the year, but why are you so bigoted as to suppose that a civilized woman of taste and refinement, obliged to live in this horrible English climate, will sit down to a miserably chilly mess of raw carrot in January? I should need a hot-water bottle in my lap.”

My reply: What I expect from a woman of intelligence is not invariably what I get. If your sophisticated stomach needs external heating to enable you to enjoy the delicate and pungent mixtures of raw vegetables that all the more civilized of Continental people prepare with skill and eat with relish, why not live in France or Spain where, so you lead me to suppose, the sky is never grey and the east wind never blows? What you need is a new form of nutritional central heating which would, I hope, thaw out your prejudices and awaken an appreciation of the innumerable charms of the English climate.

REACTION 5.—“Don't you think [this is said with a geniality that would be disarming if it were not so palpably a device for avoiding the trouble of thought and reflection], don't you think, when all is said and done, that the truth lies in the old saying, One man's meat is another man's poison?”

My reply: No food that is honest and good can be poison to anyone. The only truth in the old saying is that one person here and there may have an obscure physical or psychological idiosyncrasy—possibly caused by some pre-natal or infantile circumstance—which results in some particular food upsetting him. In many instances, this peculiar reaction diminishes as the individual's condition improves. There is the further point that what is always an unwholesome or a deficient food will not give rise to palpably 'poisonous' results so quickly in one man as in another. One man's 'poison' may not appear to 'poison' another man, but it will sooner or later do so.

But for the patient and even eager reader who is not content to give a passing glance to a list of specimen meals, let me discuss those two contrasted daily programmes.

1.—In the first column, the total of PROTEINS is more than is needed by all but very exceptional individuals, and there-

fore will sooner or later induce trouble of one kind or another. In the second column there is a reasonable amount of PROTEIN in some of its best forms. But for the reader who for any reason is not prepared to forgo red or white meat, this *can take the place of* the items printed in capital letters, and still leave the meals a vast improvement on those in the first column.

2.—In the first column, the boiled and often carefully strained vegetables have lost some at least of their alkaline minerals (especially sodium, potassium and iron) while if soda has been used it will have destroyed the vitamins; while the salad is smaller than it should be and its alkaline value is effectually cancelled by vinegar, either as such or as present in bought salad cream. In the second column, the all-important alkaline over-plus is ensured *at every meal* (note the items marked*) and by the bedtime cup. The waste-acids in soup based on meat-stock, as in the first column, are in the second replaced by the valuable alkaline properties of vegetable soup.

3.—In the first column, the fruit is over-acid and therefore smothered in refined sugar, which makes matters worse. In the second the fruit is ripe and needs no sugar, while figs and sultanas are richer in alkaline minerals than most other kinds and are the lowest in acid content.

4.—In the first column, deficiency foods (or ingredients), printed in *italic* type, appear four times in the day—quite apart from any chocolate or other sugar-confections between meals. In the second column there are no deficiency foods or ingredients whatever, yet every item is attractive.

5.—In the first column, vitamins are somewhat scarce. In the second they are all over the place.

6.—In the first column there is an almost total absence of fibre or 'roughage', but on the contrary the white flour, polished rice, cornflour and refined sugar all induce constipation or other unpleasant conditions in the digestive organs and do not encourage mastication. In the second, the raw salad and cooked vegetables, the fresh and simmered sweet fruits, the oatcakes, crispbread and dry toast, supply fibre of the best kinds, while mastication is encouraged.

7.—In the first column, the sugar-starch needs of the body are met with over-concentrated or ultra-refined foods (in *italic* type) and in such excess in total that trouble of one sort or another is certain to develop, first beneath the surface and unnoticed, then very much noticed. In the second, there is

starchy grain-food of the best types at only one meal in the day, and perhaps baked potatoes at one meal with their alkaline minerals and the non-irritating fibre of their skin, and ample diluted unrefined sugar in the ripe fresh fruit and the **simmered tree-ripened dried fruits.**

8.—In the first column, digestion is started five times in the day, quite apart from such common extras as biscuits with early tea, cake with mid-morning coffee, and chocolates, toffees or 'mints' at the 'pictures.' In the second column the meals are reasonably spaced out. In fact, many people past forty years of age find the no-breakfast plan a great aid to **lightness and energy.**

9.—In the first column the mixtures are not conducive to good digestion and a clean lower bowel, and in many people directly feed the craving for frequent tea and coffee and other stimulants, not to mention that heavy, tired feeling on waking so falsely attributed to night-starvation, or to 'nerves,' or to lack of nourishment! In the second column, each meal will be digested with comfort except by those whose condition is such that greater simplification under skilled direction is necessary in order to raise their physical tone to the point of their being able to enjoy good food without anxiety as to results.

19.—Some Illustrative Recipes

THE recipes that are given here are intended to illustrate how what has been said in the preceding chapters is put into practice. Most of them were worked out for *Health and Life* by Mrs. Maud Baines, and are included here with her kind permission. Others are my own.

Many other recipes are included in *Simple and Attractive Food Reform* (1948, 3s. 6d.).

New World Cocktails

Sunshine Cocktail

Canned Tomato Juice is very good by itself; also Pineapple Juice, Orange Juice and Grapefruit Juice. These are absolutely pure and genuine. Serve in wine-glasses.

Alkaline Cocktail

Grate some scrubbed raw carrots on to a square piece of strong muslin spread over a plate. Gather up the four corners and twist to make a bag. Squeeze gently but firmly over a bowl. Then grate a chunk of cucumber (not peeled) and add this to the raw carrot juice. Serve in wine-glass.

Hors d'oeuvres

Arrange any selection from the following on a suitable dish—a long, narrow dish or a specially attractive round one:

Slices of firm tomato dressed with nut oil and lightly sprinkled with grated cheese.

Crisp red radishes dipped in oil and lemon juice.

Small cubes of cold, cooked potato and carrot, in plenty of Gold Standard mayonnaise (the kind made with lemon juice).

Freshly grated raw carrot or celeriac.

Vegetable Soups and Purées

Although raw vegetable juices are probably the most potent of all food-aids to the recovery and maintenance of maximum health, vegetable soups and purées are of great practical value, because they provide the body with quickly assimilated solutions of the extremely important alkaline mineral salts which constitute the chief value of fresh vegetables.

It cannot be too strongly emphasized that, from the point of

view of health and nutrition, meat stock is very different from vegetable stock. The former contains the acid body-wastes of the animal, which, though imparting flavour, are not purifying. Bone stock has at least the value of its calcium content.)

Vegetable soups and purées can be either purely cleansing and curative (as when no cereal or other nourishing ingredient is used) or both cleansing and nutritive, as when milk, grated cheese, soya flour, Emprote or nourishing soup powders are added.

It is best to use vegetable stock as the basis (see first recipe). Should this not be available at any time, water flavoured with Yeastrel can replace stock in all these recipes.

When any of these are served at the beginning of a meal, a teacupful is sufficient. Only custom stands in the way of taking them towards the end of a meal.

Stock

Apart from any liquor left in the pan after cooking vegetables, it is genuine economy (of money and health) to prepare vegetable stock as follows. Save all the trimmings of vegetables (after cutting away any decayed parts), such as runner beans, pea-shucks, stalks or spinach and beet-spinach, green tops of leeks and celery, leaves of home-grown beetroot and carrot, coarse leaves of cabbage, peel of turnips, swedes, etc., stems and ribs of flowering broccoli and kale. Wash and cut up and then simmer without salt on low heat for an hour at least, longer if practicable. Parsley, mint, and other garden herbs can be added.

This stock by itself makes an excellent purifying drink taken at night or mid-morning, and can be flavoured with Yeastrel.

In the winter it keeps for several days easily; even in summer if it is brought to the boil once a day it will keep for three days, except in very hot weather.

The Simplest Soup

Into hot vegetable stock (see above) dissolve a little Yeastrel (to taste), stir in either milk or cream, and serve at once.

Runner Bean Soup

When cutting away the stringy edges of runner or French beans (previously washed), put these into an enamel pan, add water (but no salt) and simmer for about an hour on low gas. Strain off liquor, put back in pan, heat, and just before serving stir in cream and a dash of grated nutmeg or powdered mixed herbs.

Lettuce and Onion Soup

Put into enamelled pan the washed, outer leaves and stumps of lettuces. Add a chopped onion and water, but no salt. Simmer on low heat for about an hour. Shortly before serving add a level teaspoon of soya flour for each person; stir till quite smooth.

Ten-second Soup

Put half teaspoonful of 'Vecon' into a small teacup, fill with hot water and stir.

Delicious Red Soup

Wash and slice some red cabbage and simmer for an hour. Scrub a raw beetroot, shred on a Two-way Grater, then squeeze the juice out through a linen bag. For the soup take equal quantities of red cabbage water (from the cooked vegetable) and raw beetroot juice. Add a dessertspoon of raw onion juice (if liked), and one dessertspoon of 'Ideal' milk to each person. Add one ounce of butter and make very hot in a saucepan, but do not boil.

If fresh cream should be obtainable, use it instead of the 'Ideal' milk, the same quantity, but stir in just before serving.

Potato Cream Soup

- 2 lbs. potatoes.
- 1 onion.
- 3 pints vegetable stock or water.
- 1 oz. margarine or 2 tablespoons top-milk.
- A little celery salt.

Scrub, but do not peel, potatoes. Cut up into slices. Well chop onion, add to potatoes, add stock. Bring to boil, simmer 45 minutes. Rub through a sieve with wooden spoon, add the butter or cream, re-heat, but do not boil.

Swede and Artichoke Purée

- 1½ lbs. artichokes.
- 1 lb. swedes.
- 1½ pints of stock (see first recipe).
- ½ pint milk.
- 1 teaspoon mixed herbs.

Scrub artichokes, do not peel. Peel and grate swedes. Cook together in the stock. When done rub through a sieve, return to pan, add the herbs and milk, and simmer for a few minutes.

Pea and Carrot Purée

- 1 teacup split green peas (these are without skins and more digestible than whole dried peas).
- 1 lb. carrots.
- 2 or 3 shallots or 1 small onion.
- Several sprigs fresh mint.
- 1 quart stock (see first recipe).
- 1 dessertspoon nut oil, olive oil or butter.

Slice shallots, brown them in the oil in a pan. Scrub and cut carrots into small chunks. Place peas, carrots, shallots and the

chopped mint into a pan, add the stock, bring to the boil, then cook slowly for half an hour. When tender rub through a coarse sieve and reheat in pan.

Winter Vegetable Purée

Take equal quantities of raw carrot, potato and onion. Peel onion, and scrub the others clean. Then grate all three on the Two-way Grater (sold by Health Stores). This is quickly done. Put the pulp into an enamelled pan or enamelled iron step-pan, add not more than two-thirds the amount of water as of vegetables, and simmer very gently, stirring all the time, or very frequently, until the vegetables are smooth. Just before serving add a little warm milk or cream, and for additional flavouring (though it is not really necessary) either Yeastrel, mint or parsley, or powdered garlic. This purée makes a delicious and extremely valuable tonic dish in cold weather.

Examples of Winter and Spring Salads

Winter Salad

Choose a small, hard cabbage, remove coarse, outer leaves and stump. Cut into four quarters and wash well under a running tap. Then allow the quantity required to stand in cold water for half an hour to make it crisp. Lift and shake well. Cut away the centre rib. Then with a sharp knife slice as thinly as possible. (This is an excellent, digestible and economical base for winter salads.) Add any of the following: Watercress, mustard and cress, grated raw carrot or root artichoke, cooked beetroot, chopped onion, the bleached part of endive, tender batavia leaves, cold, cooked potato (baked or steamed previously in the skins). A dressing of nut oil shaken up with fresh lemon juice or canned pineapple juice.

Endive and Celery Salad

When curly endive is cheap it is very good in salads, and attractive to look at. It is not difficult to grow in the garden. Remove the darker leaves, as they are often bitter. Wash well, then tear into pieces, put some in salad bowl, add some watercress and heart of celery, chopped up with a crisp apple.

Dandelion Salad

Lettuce.
Cooked beetroot.
Grated raw carrot.
Young dandelion leaves, chopped.

Wash greenstuff and arrange ingredients on each plate.

Delicious Pine Salad

Lettuce.
Pineapple (fresh or canned).
Home-made curd cheese.

Cut up the pineapple. Heap this on lettuce; curd cheese on top.

Orange Cream Salad

Cucumber.
Mustard and cress.
Young beetroot leaves from garden beets.
Sweet orange quarters.

Serve with Orange Cream made as follows:

To 1 tablespoon of Almond Cream add gradually 4 tablespoons of orange juice and the grated outer rind of one orange.

Fruit and Vegetable Salad

Lettuce.
Watercress.
Sliced raw sweet English dessert apples.
Shelled walnuts.

Wash greenstuff and shake well. Pile this on each plate; make a centre of the sliced apples and shelled walnuts.

Savoury and Meatless Dishes

A great variety of attractive dishes can be made with both cheese and eggs. Many will be found in *Simple and Attractive Food Reform*.

Since both cheese and eggs, and also most nuts, are fully equivalent to meat in protein value, they naturally come regularly into meatless meals. But cheese and nuts are often so cooked as to earn a reputation for indigestibility. When cheese is exposed to direct heat it tends to become leathery, while nuts in the form of fried rissoles and 'roasts' are far from satisfactory.

The recipes given here are examples of how best to use these excellent protein-foods.

Soya Cheese Sauce*Ingredients for 2 or 3 persons*

1 oz. butter.
1 level teaspoon Yeastrel.
1 level tablespoon Soya flour.*
2 tablespoons vegetable stock and milk, mixed.
4 ozs. grated cheese.

Mix soya flour to a smooth paste with some of the liquid, gradually adding the rest. Put into small enamel pan, add butter and stir over low heat until it thickens a little; stir in Yeastrel, drop in the cheese, stir and cook a few minutes. Serve on cooked vegetables. Also very nice, when cold, with salad.

*Supplied by Health Stores.

Celery Savoury*Amounts for 4 persons*

Clean and chop into small pieces and partly cook a good head of celery in very little stock or water, putting green tops and the coarse outer pieces into stock-pot.

Make a batter with:

- 3 ozs. wholemeal flour.
- $\frac{1}{2}$ pint of milk.
- $\frac{1}{2}$ pint of stock.
- 2 eggs (fresh or dried).

Allow it to stand for an hour if possible. Then stir, and pour into a buttered baking dish or fireproof glass casserole together with the partly cooked celery, and cook in moderate oven until golden brown.

Carrot and Seakale au Gratin*For 3 or 4 persons*

Scrub, cut up small and partly cook 1 lb. small carrots in a little water. When nearly done, add $\frac{1}{2}$ lb. washed seakale cut into pieces; put knob of margarine on top, cover and cook a little longer, about 20 minutes. Grate 6 ozs. dry Cheddar cheese. Put $\frac{1}{2}$ pint of milk and water in a pan, add cheese and stir over low gas.

Mix 3 tablespoons of cereal flakes (or toast-crumbs from very well-done toast) to a paste with some milk and water. Stir this into the cheese and gently cook for a few minutes.

Butter a dish, mix cheese well into the vegetables, put into dish, cover with a thin layer of mashed potato or more flakes. Heat in oven until *lightly* browned.

(This is a complete course in itself, and far superior to meat and boiled vegetables.)

Steamed Cheese Savoury

- 1 $\frac{1}{2}$ teacups crisp cereal flakes crumbled finely (one of the various flaked breakfast foods).
- 6 ozs. grated Cheddar or Canadian cheese.
- 3 oz. grated raw swede or carrot.
- 1 egg.
- 1 gill vegetable stock.

Mix all together, bind with the egg added to the stock, put into buttered basin, cover, and steam for 45 minutes.

Coddled Eggs on Spinach

One egg per person. Steam the eggs in their shells until just firm, but not hard. Choose a pan with a close-fitting lid, and put enough boiling water in it to well cover the eggs. Allow to stand off the direct gas in a warm place for six to seven minutes. They are then beautifully coddled, the whites are creamy and the yolks soft. To do this very lightly for ordinary eating five minutes is

enough, but for this dish they need to be firm enough to shell while hot.

Cook some spinach or young nettles. Keep the liquor for soup or stock. Arrange in a buttered baking dish. Shell the eggs quickly and lay carefully in the nest of greenstuff. Sprinkle with celery salt, and serve at once. The eggs must be done just before serving the complete dish.

Egg and Cheese Soufflé

Nearly fill a buttered pie-dish, or individual scallop-dishes, with milk; stir in one beaten egg for each person, and a level dessert-spoonful of grated Cheddar cheese. Cook in a moderate oven till lightly browned (about 20 minutes).

Steamed Egg Savoury

Beat the yolks and white separately of 4 new-laid eggs until frothy, as for omelettes; mix together $\frac{1}{4}$ pint of milk, $\frac{1}{4}$ pint of raw carrot and raw onion juice; add this to the eggs and sprinkle in lightly 2 ozs. of grated dry Cheddar cheese. Stir over low gas for a few minutes (to prevent the eggs sinking to the bottom while cooking), and then put into a buttered basin, cover, and steam for 25 minutes. Turn out and scatter some finely-chopped parsley on top.

To extract the vegetable juice, first scrub and grate the roots on a Two-way Grater,* then squeeze through a linen bag.

Steamed Cashew Savoury

- $\frac{1}{2}$ lb. ground cashew nuts.*
- 3 ozs. of brown breadcrumbs (fresh bread, not baked crumbs, to swell and bind the mixture).
- 1 teaspoon Yeastrel.
- 1 minced onion, and enough water or stock to make mixture firm and stiff.

Melt Yeastrel in a little warm water or stock and mix into other ingredients. Steam for 1 hour in a buttered and covered basin.

Nut Savoury

- 6 ozs. ground nuts (available kind).
- 3 ozs. celery soup powder.*
- 3 ozs. chopped celery or leeks (bleached part).
- $\frac{1}{2}$ pint fresh milk.

Mix all together. Put into greased glass or earthenware baking dish, and bake for about 40 minutes.

*Supplied by Health Stores.

Better Ways of Using Vegetable Marrow

Probably no other vegetable is so badly cooked as this, or so tasteless when thus served. The small young marrows are much better than the big ones, and can be easily cooked either whole (by baking) or cut in thick rounds and cooked in very little water. With young marrows the skin is tender (and valuable) and the seeds, if any, are so soft that they need not be removed. Even when cooking larger marrows, the seeds and centre pulp should be put in the stock-pot.

Young Marrow with Soya Sauce

Cook a young marrow as above described, and serve with the Cheese and Soya Sauce given in previous recipe (page 96).

Marrow Cream

- 1 lb. cooked vegetable marrow.
- 4 ozs. light Barbados sugar.
- 2 level tablespoons honey.
- 2 small lemons or oranges.
- 2 ozs. margarine.

Very thinly peel the marrow and scoop out seeds (put these in stock-pot), cut up and cook in very little water so that all is absorbed when done. Then mash 1 lb. of the marrow in a saucepan, add butter, honey and sugar, lastly the strained orange or lemon juice, and the outer yellow surface of peel, grated. Stir over low gas until creamy. This can be put into pots and covered like jams. It is one way of using surplus marrows from the garden, and is delicious with fruit sundaes or simmered dried fruits.

Some Neglected Vegetables

Red Cabbage

There is no sense whatever in using this splendid vegetable solely for pickling. Remove the outermost leaves. Cut the cabbage into small chunks and wash. Have ready an enamel pan containing a teacupful of *boiling* water (for a smallish cabbage), add half a teaspoonful of caraway seeds (if liked). Put the cabbage in pan, cover closely and cook gently until tender. A little butter can be added shortly before serving. Keep any liquor left over, as it makes an excellent stock or basis for soup. It turns a purple-blue, but this does not affect its wholesomeness.

NOTE.—The Easiwork Cooker is excellent, especially for busy people. It cooks all vegetables conservatively and in much less time.

Red Cabbage in Salad

This vegetable raw is very attractive and wholesome in a winter salad.

Cut a small, firm red cabbage into four quarters, cut away the tough white centre rib and put into stock-pot, also the outermost leaves if limp or too coarse.

Let running water from the tap run into the spaces by pressing open, but firm red cabbages are usually quite clean and free from insects.

Put the required quantity in a bowl of cold water for one hour. Lift and shake. Then *slice* as finely as possible with a sharp knife.

The rich colour and slightly sweet and very attractive flavour will improve any winter salad.

For alkaline value of red cabbage see pages 107, 108, 109.

Salsify

This vegetable is somewhat like a slender parsnip in appearance, but it possesses a delicate flavour that is unique. It needs to be scrubbed and lightly scraped, then cut, and cooked in a little water until tender. As each root is cleaned and scraped, drop it into a bowl of cold water to prevent it changing colour.

It is not so pleasant raw, as the flavour is then slightly bitter.

Celeriac

This is the turnip-rooted celery and is more easily cultivated than celery, since it needs no earthing up.

Scrub clean and then grate for salad; or peel thinly, cut in slices, and cook in as little water as possible.

Some Ways of Using Carrageen (Irish Moss)

This sea-food has been gathered by the peasantry of Western and Northern Ireland for centuries. It is probably the richest alkaline food in existence, as will be evident from the mineral content shown on pages 107-110.

It has a slightly briny taste if taken by itself, though some people find it quite easy to take when merely cooked in water. But for most people it needs definite flavour added. The following recipes are examples of how delicious dishes can be prepared with it.

Carrageen Spinach Soup

- $\frac{3}{4}$ oz. carrageen.
- $\frac{1}{2}$ pint liquor from cooked spinach.
- $\frac{1}{2}$ pint milk.
- 1 oz. margarine.

Wash, and then soak the carrageen in the cold milk. Simmer

in double saucepan until soft, about 30 minutes. Pick out with fork any shreds not dissolved. Add margarine and spinach juice and heat thoroughly.

Other vegetable liquor can be used in the same way.

Carrageen Hot-Pot

- $\frac{1}{2}$ oz. carrageen.
- 1 potato.
- 2 pennyworth large spring onions.
- 1 pennyworth fresh mint.
- 1 lb. shelled peas.
- A sprig of parsley.

Wash, and then soak carrageen in one pint of water or vegetable stock. Scrub potato, and then grate on Two-way Grater. Wash and chop the onion stalks, and cut the bulbs into halves. Put these with the peas into the soaked carrageen, turn into a casserole or stew-pan and cook all together, with the mint and parsley, on low gas until tender.

Dried Fruits with Carrageen

An excellent way of using dried fruits is to combine them with carrageen.

- 1 teacupful of carrageen, pressed tight.
- $\frac{1}{2}$ lb. dried fruits.

Soak carrageen in cold water for ten minutes, and then drain. Wash dried fruits. Put carrageen and fruit into enamel pan with 1 pint of water. Simmer gently for 20 to 30 minutes. Pick out with fork any strands of carrageen that have not dissolved. Pour all into wet mould, cover and allow to set. The larger dried fruits can be cut up before simmering. Spice, such as powdered cinnamon or nutmeg or clove, can be added to taste, or the grated outer rind of fresh lemon or orange.

Banana Carrageen

- 4 ripe bananas.
- 1 lemon or orange.
- 1 tablespoon chopped dry Chyloong ginger.
- 1 tablespoon honey.
- 1 breakfast cup cold water.
- Nearly $\frac{1}{2}$ oz. carrageen.

Wash carrageen. Soak in the water for 15 minutes. Then simmer until soft. Be very careful not to let the water boil away. Add honey and stir until dissolved; then add the juice of the lemon or orange. Grate the outer surface of peel of lemon. Well mash the bananas, mix the grated peel into them. Place in a wet dish, pour over the jelly, mix all together, and allow to set.

Some Ways of Using Ordinary Bananas

In general it is best to use the small Canary bananas with spotty skins, usually sold with Sale's label. But when these cannot be had, the ordinary large variety can be rendered more digestible in such ways as the following.

Baked Bananas

Cut away any decayed parts from the skin, and wash. Make a light cut down one side of skin. Put on baking dish and bake in moderate oven for about 15 minutes. Open up skins, but don't remove them; add a knob of butter and a little powdered cinnamon, and serve hot.

Spiced Bananas with Cereal and Fruit

Bake bananas as in above recipe. When ready, cut right open and sprinkle on them a little grated nutmeg, powdered cinnamon or mixed spice. Have some cereal flakes warming in the oven and some hot soaked currants of good quality (Vostizza are the best). On each plate, serve three tablespoons of flakes, a knob of fresh butter, two tablespoons of the soaked currants, and lastly the inside of one spiced banana.

Cold Banana Sweet

Bake bananas as in first recipe. When cool, mash and add some diluted nut cream, enough to make a creamy texture.

When quite cold serve on a slice (for each person) of fresh, prepared pineapple or canned pineapple. Chop some dry Chy-loong ginger finely and sprinkle over. Those who do not like ginger can substitute crystallized cherries or violet leaves.

Examples of Good Steamed Puddings

Raisin Pudding without Flour

- 2 ozs. conservatively cooked carrots, well mashed.
- 3 ozs. seedless raisins.
- 2 ozs. finely chopped, candied orange peel.
- 1 dessertspoon Barbados sugar.
- 1 oz. nut fat.
- 1 teacup 'Ideal' milk.
- 2 eggs.

Mix carrots, raisins, peel and sugar, melt the fat and add it to these. Whisk eggs well and add to milk (ordinary milk can be used, but this sweet is much nicer with evaporated), stir altogether, place in a greased basin and steam for 1 hour.

Wholemeal Fruit Pudding

$\frac{1}{2}$ lb. wholemeal breadcrumbs, 4 ozs. stoned chopped dates, 4 ozs. cleaned currants, 2 ozs. chopped candied peel, 4 ozs. nut suet.* Rub fat into flour, add fruits and peel (no sugar is needed), mix well with sufficient water to make a not too wet paste. Put into a buttered basin, cover with buttered paper and steam for 3 hours. Other dried fruits can be substituted. No sugar is needed as the dried fruits supply it.

Some Ways of Using Raw Vegetable Juices

Raw vegetable juices are of very great value for restoring health in every kind of illness or chronic ailment. But if they were more generally used in the ordinary meals, there would be far less sickness than there is.

For people who are obliged to have their meals in restaurants or as served in service flats or boarding houses, the deficiencies of boiled vegetables can readily be made good by taking small quantities—say a couple of wine-glasses—daily of one or another kind of raw vegetable juice. All that is necessary is a juice extractor.

In the household meals, there are several ways of using raw vegetable juices. In hot weather refreshing cold soups can be served, that is, raw juices suitably flavoured or enriched. In cold weather or on cool summer or autumn evenings some raw juice can be stirred into hot soup just before serving. Or just tiny cocktails can be served, but utilising such vegetable juices as tomato, lettuce, pea-shucks or cucumber.

The following recipes are of special value in the feeding of sick people, but they can also be served at any time as a quick and simple way of providing vitalising nourishment when a substantial meal is not required. Some of them make excellent night-caps.

The use of eggs in several of these recipes is not intended to suggest that eggs should be used to excess, or are advisable for everyone. But where there is debility and real need for readily digested nourishment of a balanced nature, raw vegetable juice beaten up with a raw egg is one excellent way of providing it. The same is true of milk with raw juice.

Except for cucumber, lettuce, celery, tomato and vegetable marrow, the flavour of raw vegetable juices is rather strong,

*Supplied by Health Stores.

so that if they are to be added to soups or other dishes one level dessertspoonful of raw juice for each person is about enough.

Carrot and Cream Tonic

2 tablespoons of raw carrot juice.

Add milk to make $\frac{1}{2}$ pint.

Add a little cream and mix in a plunger or milk-mixer.

Lettuce and Celery Tonic

The juice from lettuce and celery mixed.

Pea-Shuck Juice

Fresh pea-shucks, washed and the bad parts removed, passed through juice-press, yield a lovely bright green, slightly sweet juice, which can be used neat.

Onion Juice and Honey (for Coughs)

Raw onion juice is too strong and bitter for most palates, but it can be used medicinally. For sore throats or coughs put a little pure honey in a dessertspoon, add one teaspoon of raw onion juice, and take every two or three hours.

Cucumber Egg Nogg

$\frac{1}{2}$ tumbler of juice from washed, unpeeled cucumber.

A pinch of celery salt.

1 egg.

Fill up with top of the milk.

Beetroot Egg Nogg

4 tablespoons of raw beetroot juice.

1 well-beaten egg.

Fill up glass with milk.

For Sleeplessness

An excellent nightcap for people who suffer with sleeplessness can be made by using one dessertspoonful of onion stock, one table-spoonful of raw lettuce juice, and a little milk or Emprote. The stock is prepared by simmering some chopped onion in water for an hour. Strain off the stock, add the lettuce juice (cold), and stir in the milk or Emprote.

20.—Simple Guides to Food Values

My purpose in giving the following lists is to illustrate how greatly our ordinary everyday foods vary in regard to their make-up, as already described in chapters 3, 4, 5, 7, 8 and 9. Unless these chapters are read, the figures in these lists are capable of being misunderstood. Thus it does not follow that because a particular food is at or near the top it is the best in its group.

(i) Simple Guide to Protein in Foods

<i>in 100 parts</i>		<i>in 100 parts</i>	
Soya flour . . .	43	Wholemeal bread . . .	9
Wheat germ . . .	35	Swedish crispbread . . .	9
Italian pinekernels . . .	33	Lentils (cooked) . . .	7
Chicken . . .	29	Coconut meal . . .	7
Peanuts . . .	29	Haricot beans (cooked) . . .	6½
Cheddar cheese . . .	25	Fresh peas (uncooked) . . .	5
Mutton . . .	25	Fresh coconut . . .	4
Almond and 'Almond		Dried apricots . . .	4
Cream' . . .	21	„ figs . . .	3½
Oatmeal (raw) . . .	15	Dates . . .	2
Brazil kernels . . .	13	Chestnuts (raw) . . .	2
Barcelona „ . . .		Potatoes (cooked) . . .	1½
Eggs . . .	12½	Bananas . . .	1
Walnuts . . .	12	Raisins . . .	1

Fresh fruit and vegetables average less than 1.

(ii) Simple Guide to Fat (or Oil) in Foods

<i>in 100 parts</i>		<i>in 100 parts</i>	
Dairy butter . . .	85	Cream . . .	18
Barcelona kernels . . .	64	Wheat germ . . .	13
Brazil kernels . . .	61	Fresh Salmon . . .	13
Almonds and 'Almond		Oatmeal . . .	7
Cream' . . .	53	Raisins, dates . . .	2½
Walnuts . . .	51	Chestnuts . . .	2½
Italian pinekernels . . .	48	Wholemeal flour . . .	2
Coconut (fresh) . . .	36	Grapes . . .	1
Egg yolk . . .	32	White fish . . .	1
Cheddar cheese . . .	30	Swedish crispbread . . .	½
Soya flour . . .	20		

Olive oil, Nut oils, Soya oil are virtually 100 per cent oil.

(iii) Simple Guide to Sugar in Foods

<i>in 100 parts</i>		<i>in 100 parts</i>	
Barbados raw sugar	94	Greengages	11
Honey	81	Beetroot (cooked)	10
Maple syrup	71	Pears	10
Sultanas (dry)	64	Orange juice	9
Raisin and muscatels	64	Fresh figs	9
dates	63	Carrots	5
Figs (dry)	53	Raspberries	5
Prunes (dry)	40	Onions	5
Bananas (when melting-ripe)	19	Almonds	4
Grapes	16	Turnips (cooked)	2
Apples (dessert)	12	Lemon juice	1
		Celery (raw)	$\frac{1}{2}$

(iv) Simple Guide to Starch in Foods

<i>in 100 parts</i>		<i>in 100 parts</i>	
Tapioca (uncooked)	88	Lentils (cooked)	17
Cornflour	80	Haricot beans (cooked)	16
Rice (polished)	77	Bananas (hard and un-ripe)	12
Swedish crispbread	70	Parsnips (cooked)	10
White flour biscuits (dry, unsweetened)	70	Peanuts	5
Oatmeal (raw)	67	Brazil kernels	2
Oatcakes	55	Walnuts	$1\frac{1}{2}$
Wholemeal Bread	52	Almonds, pine kernels, cheese, eggs, fish, mutton, milk, cream butter, olive oil	nil
Chestnuts	29		
Soya flour	20		
Potatoes (cooked)	19		

All fruits except bananas and all green vegetables nil

(v) Simple Guide to Alkaline Minerals in Foods

(The alkaline minerals are Potassium, Sodium, Calcium, Magnesium and Iron. These are included in a single total here.)

<i>Milligrams in 100 grams of dry substance</i>	<i>Milligrams in 100 grams of dry substance</i>
Irish moss (carrageen) 6,479	Cherries . . . 304
Figs, dried . . . 1,482	Broccoli tops . . . 285
Almonds . . . 1,370	Pineapple . . . 278
Brazil kernels . . . 1,350	Grapefruit . . . 263
Spinach . . . 1,271	Oranges (peeled) . . . 254
Sultanas . . . 997	Lettuce . . . 247
Dates . . . 886	Victoria plums . . . 219
Watercress . . . 615	Orange juice . . . 204
Potatoes . . . 607	Cucumber . . . 186
*Chicken . . . 485	Melon (yellow) . . . 168
Celery . . . 477	Lemon juice . . . 158
Beetroot . . . 462	Pears (dessert) . . . 141
White fish (average) . . . 461	Apples (desert) . . . 130
Mustard and cress . . . 453	Vegetable marrow . . . 104
Black currants . . . 452	Whey . . . 47
Endive . . . 448	Cheese (average) . . . 36
Parsnips . . . 436	Cow's milk . . . 34
Red cabbage (raw) . . . 404	Black treacle . . . 33
Bananas . . . 398	Wheat-bran . . . 27
Brussels sprouts . . . 393	Eggs . . . 21
Fresh peas . . . 389	Rye crispbread . . . 10
Spring onions . . . 386	Chocolate . . . 10
Carrots . . . 380	Oatmeal . . . 9
Turnips . . . 362	Wholemeal bread . . . 9
Leeks . . . 360	Barbados sugar . . . 8
Radishes . . . 355	Cornflour . . . 3
*Beef, mutton (average) 345	Polished Rice . . . 2
Runner beans . . . 339	Honey . . . 2
Black Grapes . . . 326	Tapioca . . . }
Tomatoes . . . 316	White sugar . . . }

*For discussion of these items see page 56.

(vi) Simple Guide to Calcium in Foods

(another of the most important alkaline minerals)

<i>Milligrams in 100 grams of dry substance</i>	<i>Milligrams in 100 grams of dry substance</i>
Irish moss (carrageen) 845	Cheese (average) . 27
Spinach . . . 595	Lettuce . . . 25
Dried Figs . . . 284	Strawberries . . . 22
Almonds . . . 247	White grapes . . . 19
Watercress . . . 222	Black „ . . . 4
Brazil kernels . . . 176	Grapefruit . . . 17
Spring onions . . . 135	Cherries . . . 15
Turnip tops . . . 98	Tomatoes . . . 13
Dates . . . 68	Vegetable marrow . 13
Mustard and cress . . 65	Whey . . . 13
Blackberries . . . 63	Cow's milk . . . 12
Leeks . . . 60	Pineapple . . . 12
Black currants . . . 60	Victoria plums . . . 11
Salsify . . . 60	Orange juice . . . 11
Turnips . . . 59	*Chicken . . . 10
Cabbage . . . 58	Lemon juice . . . 8
Swede . . . 56	Potatoes . . . 8
Parsnips . . . 54	Pears . . . 7
Red cabbage . . . 53	Bananas . . . 7
Sultanas . . . 52	*Beef, mutton . . . 6
Celery . . . 52	Eggs . . . 4
Carrots . . . 48	Black Treacle . . . 4
Seakale . . . 48	Apples . . . 3
Celeriac . . . 46	Wheat-bran . . . 2
Radishes . . . 43	Rye crispbread . . . 1
Endive . . . 43	Oatmeal . . . 1
Raspberries . . . 40	Chocolate . . . 1
*White fish (average) . 35	Maple syrup . . . 1
Green figs . . . 34	Barbados sugar . . . 0.7
Beetroot . . . 30	Wholemeal flour . . . 0.7
Artichokes (tuber) . . 30	Cornflour . . . nil
Brussels sprouts . . . 27	

*For discussion of these items see page 56.

(vii) Simple Guide to Sodium in Foods

(one of the most important alkaline minerals)

	<i>Milligrams in 100 grams of dry substance</i>		<i>Milligrams in 100 grams of dry substance</i>
Irish moss (carrageen)	2,895	Cow's milk	5
Celery	137	Dates	4
Spinach	123	Seakale	4
Coconut milk	105	Lettuce	3
*White fish (average)	100	Rye crispbread	3
Carrots	95	Blackberries	3
Figs, dried	86	Oranges	3
*Mutton	70	Artichokes (tuber)	2
Beetroot	64	Black currants	2
Watercress	60	Raspberries	2
Radishes	59	Tomatoes	2
Turnips	58	Pears	2
Sultanas and raisins	52	Apples	2
Swedes	52	Cherries	2
Red cabbage	31	Lemon juice	1
Celeriac	28	Orange juice	1
Mustard and cress	19	Pineapple	1
Coconut	16	Bananas	1
Parsnips	16	White and black grapes	1
Spring onions	13	Strawberries	1
Winter cabbage	13	Grapefruit	1
Prunes	12	Vegetable marrow	1
Eggs	10	Barbados sugar	1
Endive	10	Oatmeal	1
Whey	10	Victoria plums	1
Salsify	8	Wholemeal flour	0.5
Brussels sprouts	8	Wheat-bran	0.3
*Chicken	8	Cornflour	0.1
Potatoes	6	Chocolate	0.1
Turnip tops	6	Maple syrup	0.1
Almonds	6	White sugar	nil

*For discussion of these items see page 56.

(viii) Simple Guide to Iron in Foods

NOTE.—This mineral is present in much smaller amounts than other alkaline elements

<i>Milligrams in 100 grams of dry substance</i>		<i>Milligrams in 100 grams of dry substance</i>	
Irish moss (carageen) .	9	Raspberries .	1
*Beef .	8	Blackberries .	0.8
Lentils (uncooked) .	7	Lettuce .	0.7
Dried peaches .	6	Strawberries .	0.7
Mustard and cress .	4	Celery .	0.6
Dried apricots .	4	Red cabbage .	0.5
Almonds .	4	Carrots .	0.5
*Mutton .	4	Tomatoes .	0.4
Spinach .	4	Pineapple .	0.4
Dried figs .	4	Bananas .	0.4
Turnip tops .	3	Apples .	0.3
Brazil kernels .	3	Black grapes .	0.3
Endive .	3	Wheat-bran .	0.3
Radishes .	3	Cow's milk .	0.3
Leeks .	2	Eggs .	0.2
Sultanas .	2	Grapefruit .	0.2
*Chicken .	2	Lemon juice .	0.1
Walnuts .	2	Honey .	0.1
Watercress .	1.6	Rye crispbread .	0.08
Broccoli tops .	1.5	Oatmeal .	0.05
Salsify .	1	Barbados sugar .	0.04
Black currants .	1	White flour .	0.03
*Fish (average) .	1	Chocolate .	0.03
Spring greens .	1	Black treacle .	0.02
Fresh peas .	1	White sugar .	nil

*For discussion of these items see page 56.

(ix) Simple Guide to Phosphorus in Foods

NOTE.—Much of the phosphorus in nuts is in the form of phytin, which is difficult of assimilation. Only assimilable phosphorus is here given.

<i>Milligrams in 100 grams of dry substance</i>		<i>Milligrams in 100 grams of dry substance</i>	
Cod roe . . .	504	Bananas . . .	28
Walnuts . . .	298	Cucumber . . .	24
Chicken . . .	270	White grapes . . .	21
Irish moss (carrageen) .	205	Orange juice . . .	21
Baked beans . . .	184	Tomatoes . . .	21
Dried apricots . . .	118	Cheese (average) . . .	20
„ peaches . . .	116	Cow's milk . . .	16
Fresh peas . . .	104	Black grapes . . .	16
Sultanas . . .	94	Eggs . . .	16
Brazil nuts . . .	82	Victoria plums . . .	16
Parsnips . . .	69	Black treacle . . .	16
Endive . . .	66	Whey . . .	12
Mustard and cress . . .	65	Lemon juice . . .	10
Dates . . .	63	Human milk . . .	8
Broccoli tops . . .	54	Oatmeal . . .	8
Watercress . . .	52	Rye crispbread . . .	6
Brussels sprouts . . .	44	Wholemeal bread . . .	5
Potatoes . . .	40	Chocolate . . .	5
Dried currants . . .	40	White bread . . .	3
Green figs . . .	33	Polished rice . . .	2
raisins . . .	33	Cornflour . . .	3
Celery . . .	31	Butter . . .	0.1
Lettuce . . .	30	Barbados sugar . . .	0.03
Onions . . .	30	White sugar . . .	nil

APPENDICES

(i) A Critical Examination of Two Present-Day 'Systems' of Diet

As should be abundantly clear from many things already said, I cannot believe that eating and drinking should be brought into a system. Can we learn nothing from history? Was not the elaborate Levitical 'system' of food, with its forbidding of the cloven hoof, the classifying of foods into 'clean' and 'unclean', a relatively late development of the old Jewish culture? There may have been a core of Asiatic hygiene in this elaboration of rules, but it is certain that Christ offended the orthodox of his own day. He was neither a vegetarian nor a teetotaler. His enemies called him a glutton and a wine-bibber because they disliked his great-hearted social ways, his enjoyment of the simple but good things of the richly-cultivated Palestine of that day. The very quality of his mind, his way of judging things, made it impossible for him to please the followers of rules and regulations.

As for human history, have not the races and tribes fed first on what they could find, and then at a later stage on what they learnt how to cultivate or breed?

This modern craze for 'systems of diet' is itself a disease symptom, one of many signs of a disintegration of human wholeness. Vital races do not eat by rule, but by a totality of instinct clarified by experience. There must be system in husbanding the soil and cultivating crops, there must be keen observation and experience in the breeding and tending of animals, but in these activities system grows out of the observation of natural process, and observation creates experience. Similarly, in human eating and drinking, from the very earliest times man's experience taught him first what was poisonous, and then what was 'uncomfortable'. But the fruits of experience do not constitute a system.

There is all the difference in the world between (a) a careful study of all the more important facts, both those of human experience and those ascertained by methodical research (that is, science), and drawing reasoned conclusions from these, and (b) offering or imposing a system of do's and don'ts based on limited facts or on unsubstantiated theories or wishes.

Diet systems feed on ill-health—not only of body, but of mind. When a community includes a large number of men, women and children who are either vaguely unhealthy, or definitely unwell, or actually diseased—as in present-day U.S.A., Great Britain, India, Australia, for example—anyone who is sufficiently informed to realise the close connection between nutrition and physical condition can start a 'system.' The 'system' may be good, or partly good, or rather silly, or even (ultimately) baneful, but provided it be 'put over' with sufficient limelight, window-dressing, dogma-

tism and 'guaranteed results,' it not only offers a ray of hope to multitudes of sufferers, but evokes all that is weak, childish, credulous, and neurotic in modern over-urbanised populations. What is sound in it will help some at least to benefit; what is unsound will lead to disappointment. Those who benefit become ardent disciples or followers, their personal experience tending to blunt their critical faculty and to blind them to failures. Those who do not benefit either relapse into the arms of ordinary medical treatment or hopefully look around for another 'system'.

It is difficult to estimate the net result. All one can say with confidence—and I have myself seen many 'systems' come and go during the past thirty years or more—is that on the credit side of the account there is the very real benefit experienced by so many hundreds, or thousands, of individuals and an uncertain amount of enlightenment, and on the debit side a most regrettable and now widespread notion that health depends on 'diets'.

Therefore I feel it should be useful to many if I devote some few pages to a critical examination of just two out of many such systems. One of these is now widely known and followed in Great Britain; the other may quite probably gain many adherents in the near future. As for past 'systems', let the dead bury their dead.

In passing these two systems under review, I am only too well aware that I am laying myself open to the easy but superficial charge of adopting the attitude of a superior person, or even of wishing to set up my own system in their stead! There is no way of meeting such charges: I can only rely on the reader to note carefully (a) exactly what this book says and (b) its general tenour or spirit.

The Hay System

Some years ago a charming and soft-voiced gentleman from America came to see me in order to introduce me to the work of Dr. William Howard Hay, of Briarcliffe Manor, N.Y. We had quite a number of talks, the substance of these being (a) from his end, the insistence that all in the field of Food Reform were working together for the one great cause, and (b) from my end, the insistence that there was nothing essentially new in Dr. Hay's books and some things that were matters of controversy. My visitor was all for quite admirable sentiments, and I—rather obstinately but quite politely—was all for clear thinking and recognition of the work of predecessors.

Some time later, by one of those mysterious combinations of factors that so often give rise to a sudden public interest, almost every other person I was then meeting in the Mayfair region of London was talking or asking about the Hay Diet, and I was informed that Dr. Hay's books and 'fool-proof' diet chart (a very clever and useful device) had become almost best-sellers.

In assessing the value of any published work on food it seems

to me to be of the greatest importance to determine, first, what precisely is said in such book or books; second, to what degree this represents new light on the problems of health and ill-health; and third, to what degree it fits in with experience and the greatest number of facts. Neither oblique aspersions nor vague endorsements are fair to a public needing guidance.

Turning to the miniature *Pocket Guide* of the Hay System, I find on page 1 the statement that the formation of acids in the body is *the one and only cause of disease*. Although the formation in the body of certain acids (of which uric acid is not the worst) *and their retention* is one of the principal physical causes of ill-health and disease, there are clearly other very powerful factors—physical, psychological, environmental and economic.

The *Pocket Guide* then states that the four sources of acid formation (no reference to causes of *retention*) are (1) Too free use of concentrated protein-foods and concentrated starch-foods; (2) Widespread use of 'deficiency' cereals, grains and sugars; (3) Faulty mixing of starch-foods and sugars with proteins, and of starch-foods and sugars with acid fruits; (4) Constipation.

It is important to realise what Dr. Hay means by 'concentrated.' In *A New Health Era* he defines it thus: "A concentrated protein food is one containing anything over 15 per cent of protein, while a concentrated starch-food is one containing anything over 20 per cent starch." It is therefore puzzling to find that not only meat, fish, poultry, eggs, cheese, and nuts (with exceptions) are correctly put in the first class, but also mushrooms (only 2 per cent protein), milk (3.5 per cent) and "sea-food" which, since fish is listed separately, can only mean edible seaweeds, whose protein content is probably very much less than 15 per cent. Peanuts (23 per cent) are ruled out, reason not stated.

The 20 per cent figure for starch-foods means that valuable alkaline vegetables such as potatoes, parsnips and pumpkins are listed as concentrated starches, although parsnips contain only 10 per cent and pumpkins only 7 per cent starch, while potatoes at 20 per cent are a very different proposition from bread at 50 per cent and biscuits at 70 per cent.

Further, raisins (dried grapes), dates and dried figs are classed as concentrated sugars along with honey, syrup, and raw and refined sugars, while all other dried fruits are classified with fresh fruits. The mistake here, surely, is the failure to distinguish between dried fruit eaten as such—in which, of course, *all* the constituents are concentrated through the moisture having been evaporated—and the same fruits soaked in water, in which case they cease to represent concentration of anything.

Consider now Dr. Hay's 'four causes' of acid-formation above. (1) and (2) are fully supported by all who are familiar with the play of acid and alkali in the living body. But it is impossible (for me) to discern any causative relationship between constipa-

tion and acidosis. The toxins that a constipated condition generates are not acids, though the toxæmia arising from this source interlocks with acidosis and intensifies the total disturbance. Cause (3) needs some elucidation, and it constitutes the central feature of the Hay System.

Dr. Hay maintains that since—

(a) Saliva is alkaline and contains the enzyme *ptyalin* which breaks down starch cells, and

(b) Gastric juice is acid and contains the enzyme *pepsin* which breaks down protein, and

(c) *Ptyalin* is potent only in an alkaline medium, and *pepsin* only in an acid medium,
it follows that

(d) Acid fruit *at the same meal* as a concentrated starch-food prevents the action of *ptyalin* by lowering the alkaline property of saliva, and

(e) Concentrated starch-food (or sugar) *at the same meal* as a concentrated protein confuses and delays the digestion of protein in the stomach, because *pepsin* and the acid gastric juice do not affect starch.

It is necessary to point out that these deductions, (d) and (e), were made by Dr. J. H. Tilden some thirty years or more ago, and were a continual theme of all those hard-thinking and pugnacious books and articles of his that have stimulated and enlightened Nature Cure thought and practice ever since. I can find no reference to Tilden in Dr. Hay's books, though I have not read them all. But then very few Nature Cure books, alas, do acknowledge indebtedness to predecessors or contemporaries.

As to these deductions and their application there is much to be said in their favour as simplifying procedures, especially for sick people, as I will show later, but there are other considerations which should lead, I suggest, to qualifications and a change of emphasis.

The facts (a) and (b) are simple facts. But, as more than one reader will realise, it is odd that the races of mankind have multiplied and spread throughout the world for who knows how many thousands or even hundreds of thousands of years unaware of these facts or of what Dr. Tilden and after him Dr. Hay were eventually going to deduce from them, and yet have gone on, sometimes with great vigour. Dr. Hay, like most writers in our field, talks much of Nature and Nature's laws, and of the marvellous organs and resources that 'Nature' has organised in the human body, and he admits that many unspoiled 'natural' foods contain both proteins and starches; but he does not, I think, fully face up to these facts or to the facts of history. Did any of the

more virile peoples prior to the nineteenth century *instinctively* eat grains and flesh (for example) separately? There is no evidence that they did. How, then, did they not succumb, one nation after another over the centuries, to the diabetes, colitis, anæmia, phlebitis, cancer, arthritis, consumption, catarrh, asthma, paralysis, eczema and the rest of the horrid brood of present-day civilised diseases? True, illness and plague are recorded all down history, but if this mixing of protein and starch were as big a factor in disease as Tilden and Hay maintain, the story of humanity would have been one of physical degeneracy and even extinction before ever the pyramids were built or Columbus discovered Dr. Hay's native country.

Again, Dr. Hay does not, in my judgment, deal satisfactorily with such facts as that the starchy whole grains—wheat, oats, maize, barley, rice—contain an average of 10 per cent protein (from rice 8 per cent to oatmeal (15 per cent). Indeed, he makes the incomprehensible statement (p. 79 *New Health Era*) that the protein in grain-foods is "chiefly in the form of cellulose." Cellulose is the fibrous connective tissue of plants and belongs, if to anything, to the starches. What he seems to mean, judging by the context, is that cereal-proteins are *enclosed in* cellulose. Yet thorough mastication, on which he rightly insists, breaks down the cellulose and leaves the contained protein (gluten) accessible to the gastric juice. (C. H. Collings proved this by microscopical examination of many hundreds of fæces specimens.)

Further, the alkaline saliva, with its enzyme *ptyalin*, is not the only starch-digesting secretion. All the digestive secretions of the small intestine are alkaline, and the pancreatic juice is very much concerned with sugars and starches, as every case of diabetes shows.

Again, as to starches and acid fruits: would it not be wise to make some distinction between eating a ripe apple (for example) at the beginning or end of a meal containing a starch food, and eating a *mixture* of acid fruit and starch as, for example, apple dumpling or stewed prunes with sago pudding? In the former case it is unlikely that *the saliva brought down by the prior or subsequent mastication* of say, toast, bread or oatcake will have its alkalinity and potency cancelled *before* it has been secreted or *after* it has done its work and gone down to the stomach! One does not start a meal with one's mouth full of saliva (fortunately): it flows with the act of chewing, therefore the order of eating is of some importance.

This brings me to Dr. Hay's views on the acids in fruit. In common with almost every writer on Food, he asserts that the acids of fruits are of little consequence because they are easily and quickly dealt with, leaving the alkaline salts of the fruit as a net gain to the system. Years ago C. H. Collings' investigations showed that this assumption was not supported by the facts revealed by examination of the living blood and urine side by side.

In short when a given degree of general acidosis has been established, the body cannot cope adequately with more than a very little fruit acid (least of all with large quantities of lemon and orange juice) and its desperate struggles to deal with the total situation are hampered rather than helped by *any* kind of acid from outside. (I can therefore only urge my readers to be cautious concerning so-called Fruit-Fasts and Fruit Cures and of any suggestion that fruit is in itself and of necessity or invariably a universal remedy.)

All that has been said up to this point is to the end of clear thinking and proportion. Dr. Hay's books, apart from the matters reviewed above, contain a great deal of admirable teaching and equally sound thinking. It now remains to attempt a summing-up.

1. In every type of ill-health there is the urgent need to discard all 'deficiency' foods, that is, those that have had their mineral constituents removed (extracted sugars and refined grains in particular) since an adequate reserve of alkaline minerals in the system is essential for the clearing out of the stored acids.
2. Equally and for the same basic reason meals need to be so arranged that the accumulated acidosis factor is steadily undermined by a continuous supply of alkaline minerals as present in unspoiled foods or extracted therefrom as in vegetable broths, purées* and juices.
3. To ensure proper assimilation and to remove those morbidly fermentative conditions in the stomach and intestines that are largely responsible for the formation of acids, *digestion must be simplified*: this is where the Tilden-Hay ruling is sound in practice.
4. To counteract and prevent the complicating toxæmia arising from a lazy bowel, all possible methods must be adopted to *restore tone* to that organ (something more constructive than herbal laxatives and gravity-douches is therefore indicated).
5. The Tilden-Hay ruling as to separating proteins and starches tends *automatically* to reduce the total consumption of both, which in regard to starch greatly lightens the body's curative task, but in regard to protein should not be carried too far, except in grave conditions where the body is unequal to digesting anything at all except water.
6. Since a very large majority—I would put it at 95 per cent—of present-day people have a greater or less degree of both bowel-laziness, toxæmia and acidosis, it is understandable that the practice of the Tilden-Hay scheme should bring benefit for the reasons 1, 2, 3, and 5 above.
7. A vastly greater error than mixing proteins and starches, or starches and acid fruits, is the comparatively modern world-

*Some recipes are given on pages 94, 95.

wide reliance on processed, refined and *artificially* concentrated foodstuffs: which throws light on the historical considerations raised above.*

8. The Hay System and its present popularity are of very great assistance indeed to the Nature Cure movement in that such great emphasis is placed on the supreme value of salads and vegetables, and unspoiled foods generally, and that Dr. Hay hammers hard on the futility of medical treatment as hitherto practised: however much one may regret that many have adopted the system as a fashion rather than for whatever intrinsic worth and reasonableness it is seen to possess.

Cosmotherapy System of Diet

The resounding term 'Cosmotherapy' is applied by its originator, Edmond Székely, to an elaborate system of treatment which is claimed to be new and also to be the first attempt to enunciate an all-inclusive philosophy of health and rational 'medicine.' This is set forth in great detail in a large volume, *Cosmos, Man and Society*,† and in a more condensed form in Book II of *Medicine Tomorrow: An Introduction to Cosmotherapy with Guide to Treatment*.‡

Mr. Székely is a Roumanian. I have met him once, and hope to meet him often in the future, for immediately I saw him I recognised a warm-hearted, glowing personality, whose very presence breathed generosity, compassion and goodwill. Most of his healing experiences have been gained in tropical and sub-tropical regions.

What I am concerned with here is his 'system of diet.' But I must make one or two comments on Cosmotherapy as a whole. All its essentials—Simple Unspoiled Food, Water-treatment, Light-treatment, Clay-treatment, Exercise, Breathing, Fasting, Massage—together with the central principle of the healing energies inherent in living organisms, all these have constituted, in their co-ordination, what is generally called Nature Cure for upwards of thirty years. The late Dr. Henry Lindlahr was the first to integrate them—and also other modes omitted from Cosmotherapy—into a comprehensive philosophy and method during his notable life-work in Chicago; his well-known volumes, now unfortunately out of print, are tangible evidence of his remarkable fine mind. As far back as 1922 the Nature Cure Association of Great Britain and Ireland issued a Manifesto which was even wider in its scope, since it included, among other therapies, analytical and constructive psychology, with which Linglahr had but little, if any, acquaintance. This Manifesto marked a

*It is interesting to note that Dr. Hay, in recording his change over from medical practice to rational dietetics, and the benefit he reaped to his own health, attributes these benefits mainly to eating only unspoiled primary foods.

†Daniel, 35s.

‡Daniel, 25s.

definite epoch in 'natural' therapy, and in conjunction with, first, *The Healy Life* magazine (1911-1933) and then *Health and Life* (1934 onwards) has powerfully influenced the whole range of modern thought and practice in matters of principle and treatment.

Where Cosmotherapy claims to add to this body of thought and practice is in the inclusion of what are called in its literature 'cosmic, solar and terrestrial radiations.' The last two are, of course, light, heat, electricity and magnetism. The first is somewhat elusive. Physical science has identified one particular type of radiation which, since it has been found to reach the earth from every direction simultaneously, cannot be attributed to the sun and has therefore been named 'cosmic rays.' So far, physicists and astronomers know nothing of any effects produced by these rays on either organic or inorganic matter, nor have any effects been established. While the ancient body of knowledge called Astrology (which Lindlahr included in his philosophy) involves the conception of both planetary and stellar influences. Whether these have a physical medium or not is unknown.

So that it is difficult to understand why Cosmotherapy is claimed to be either new or the first attempt to co-ordinate and synthesize the various ingredients which constitute modern Nature Cure.

The Cosmotherapy System of Diet is summarised in Chapter III of a 28-page pamphlet issued by the Cosmotherapy organisation, entitled *Human Health*, and written by Mr. Székely's right-hand man (and capable translator), L. Purcell Weaver.

This 'system' includes some, if not all, of the primary principles of modern food reform as it has developed in Great Britain, Germany, Switzerland and U.S.A. But it goes farther and makes a number of categorical assertions and commands, some of which I now give, with brief comments.

(i) "*Heat destroys life, and consequently foods.*" This makes no distinction between better and worse methods of cookery. Cooking as such does not *destroy food*; that occurs when food is burnt to ashes. Some foods, such as starchy grains and tuberous vegetables are rendered both more palatable and more digestible by just sufficient cooking. Some of the healthiest peoples, past and present, have cooked such foods.

(ii) "*Cooked vegetables . . . leads to old age.*" Conservatively cooked vegetables (including broths and soups) are proved in Nature Cure practice to be invaluable aids to the elimination of stored waste-acids, thus deferring the oncoming of 'old age.'

(iii) "*See that your fruits and vegetables are not cultivated with chemical or animal fertilisers.*" Chemical manures have been a curse, but if by 'animal fertilisers' is meant animal excreta, solid and liquid, these are absolutely essential to the maintenance of fertility and the economy-cycle of 'nature.' In those countries,

past and present, where a healthy soil has been the basis of notable physical virility, all excrement, both animal and human, has been most carefully saved and returned to the soil, where it, of course, belongs.

(iv) "*Local produce suits the organism best from the point of view of the cosmic radiations.*" Quite apart from cosmic radiations, whatever these may be, this is undoubtedly true. But on the next page but one everyone in Great Britain is told to ensure that each day's food throughout the year shall consist of 50 per cent fresh fruit. It is difficult to see how this is to be done—quite apart from whether it is desirable—since, apart from long-keeping apples and pears, available perhaps into February and even March, there is no fresh English or Scottish fruit obtainable from October till June, when gooseberries and strawberries appear.

(v) "*Milk is merely vegetable matter transformed in the internal organs of a cow, goat or sheep at a natural body temperature.*" One is obliged to point out that so also is the entire body of a sheep, goat or cow.

(vi) "*Meat, fish and crustacea . . . are difficult to digest and scorify the organism.*" Both ordinary human experience over thousands of years and modern microscopical tests prove that fresh meat and fish, when properly cooked, and such crustacea as shrimps and oysters when eaten raw, are easily digested (whether they are in other respects conducive to optimum health is another matter, though the finest types of Polynesian, to mention only one example, have consumed *sea-fish* from time immemorial). My dictionary does not mention 'scorify.' It would appear to be a verb derived from 'scoria' which means "slag formed after the fusion of metallic ores." It is difficult to see just how or why the eating of meat or fish should produce cinders.

(vii) "*Always remove the germ before you cook eggs. The germ is the future chicken and is the equivalent of meat.*" The germ in a bird's egg is a marvellous little cluster of cells containing the organised chemical elements of which all living tissue is composed. It is not a chicken and has none of the functional characteristics of poultry-flesh. It would be as logical to follow this advice as to avoid eating a potato because it contains the 'germ' which will eventually produce leaves which are, in fact, unwholesome to man, or to avoid eating whole-wheat because the 'germ' in it will eventually produce a stem which will become straw and which, if eaten, will choke you.

(viii) "*The vitality of the organism . . . is generally almost completely paralysed by the processes of digestion.*" Digestion is a closely interlocked series of vital processes acting upon masticated food. If digestive processes paralysed one's vitality, digestive processes would not even begin, as an Irishman might say.

(ix) "*The actinic rays [of sunshine] . . . destroy microbes of*

every kind." If they did, this would be a dead world, since the entire plant-world, which is the direct or indirect source of all our food, depends absolutely on the ceaseless activity of countless billions of 'microbes' in the top-soil. When soil is neglected or faultily cultivated, or when forests are cut down, these 'microbes' starve and the 'good earth' reverts to desert.

[x] "*Fruit should form at least 50 per cent of the total daily diet.*" I will guarantee that seven out of every ten English people who obey this command, especially through the colder months of the year will, in due course, develop a more or less serious condition of acidosis (see chapter 9). And the more unhealthy they are to begin with, the more serious will the ultimate results be.

I have criticised the quoted assertions because it is precisely this kind of thing that enslaves some seekers after health and in others arouses opposition to food reform.

(ii) The Minerals Lost from Boiled Vegetables

For some thirty odd years advocates of food reform have urged the importance of cooking vegetables by methods which would prevent the loss of mineral salts. Which is another way of saying that—as so often happens—a sound idea starts outside the ranks of established 'authority.'

Dr. Lahmann, of Dresden, some forty years ago was one of the first nutritional experts to emphasise the basic importance of the mineral substances in foods. In Britain, the late Mrs. Wallace was a pioneer in this advocacy. In their days, it would have been difficult to find more than a dozen professors or medical men to support them.

To-day, the whole situation has changed. Nutritional research in Europe and America has fully established the truth which these pioneers proclaimed.

It was the more regrettable, therefore, that when McCance, Widdowson and Shackleton published their Report (No. 213) on *The Nutritive Value of Fruits, Nuts and Vegetables** in 1936, which proved most thoroughly the losses of minerals when vegetables are boiled, they should have declared that "the waste incurred by throwing away the water in which vegetables have been boiled is surprisingly small," and that "the losses incurred on boiling vegetables are not of great dietetic significance."

The newspapers seized on these curious conclusions and told the public that the fad of conservative cookery was all moonshine!

Yet the tests and figures recorded with such admirable precision in the Report prove that the loss of mineral salts is very considerable, except as regards calcium, which appears to 'stay put' inside the vegetable.

*Medical Research Council Publication. (H.M. Stationery Office, 2s.)

SENSIBLE FOOD FOR ALL

Only some vegetables were analysed both raw and cooked, but the figures for those that were are eloquent. Here are six:

MILLIGRAMS IN 100 GRAMS OF DRY SUBSTANCE					
	<i>Sod.</i>	<i>Pot.</i>	<i>Cal.</i>	<i>Mag.</i>	<i>Iron</i>
Celery, raw	137	278	52.2	9.6	0.61
„ boiled 30 mins. . .	66.5	132	52.0	8.6	0.43
Loss	70.5	146	0.2	1.0	0.18
Onions, raw	10.2	137	31.2	7.6	0.30
„ boiled 30 mins. . .	6.6	78	24.4	4.9	0.25
Loss	3.6	59	6.8	2.7	0.05
Runner Beans, raw . . .	6.5	276	33.3	23.0	0.74
„ „ boiled 25 mins. .	3.3	87	25.6	12.5	0.59
Loss	3.2	189	7.7	10.5	0.15
Turnips, raw	58	238	58.8	7.4	0.37
„ boiled 30 mins. . .	28	160	55.0	6.6	0.35
Loss	30	78	3.8	0.8	0.02
Parsnips, raw	16.5	342	54.8	22.4	0.57
„ boiled 30 mins. . .	4.1	293	35.5	13.0	0.45
Loss	12.4	48	19.3	9.4	0.12
Potatoes, raw	6.5	568	7.7	24.2	0.75
„ boiled 30 mins. . .	3.4	325	4.3	15.0	0.48
Loss	3.1	243	3.4	9.2	0.27

The only explanation given by the authors for their conclusions is that since the average daily intake of minerals from *all* food was estimated as

<i>Sod.</i>	<i>Pot.</i>	<i>Cal.</i>	<i>Mag.</i>	<i>Iron</i>
4,600	3,400	700	340	14

not to mention phosphorus, copper and chlorine; and the day's loss from boiling five named vegetables was

144	180	6	11	0.16
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therefore the loss from this source was negligible.

But the interested reader should note these important considerations:

(i) The very high figure for sodium (and chlorine) in the estimate for a day's meals indicates that common or table salt has been added in, for not many of the foods in popular consumption contain much sodium [see p. 109]. The body uses a very small proportion of common salt, the bulk being thrown out again.

(ii) Potassium is richly present in *all* kinds of food, except those that have been highly refined.

(iii) The practical experience of all who rely largely on regulated nutrition for the removal of ill-health and disease establishes the fact that, broadly speaking, the dominant factor in the great majority of physical disorders is either (a) habitual *excess* consumption of meat, eggs, and other high-protein foods and of cereal products rich in starch, or (b) habitual *excess* consumption of deficiency foods, such as refined sugars, white bread, and the like or (c) habitual *under*-consumption of raw and cooked vegetables and ripe, fresh fruit; or more often than not, *all these factors together*. And further, that in order to achieve successful results, the proportion between these classes of food has always to be changed, and that it is the fresh vegetables (raw and cooked) and their juices (raw and cooked) which provide the human body with precisely what it must have to rid its tissues of their accumulated irritants and stored metabolic waste-acids.

This third consideration is of radical importance. Vegetables are largely water and of low nutritive value. Consequently they bring the essential alkaline materials to the cells alongside no load of complicating proteins, sugars, starches and fats. On the other hand, no success can be achieved if the mineral contents of meat, cheese, eggs, fish, bread, etc., are relied on to produce the desired effect.

All foods rich in either protein, starch, sugar or fat (whatever their mineral content may be) tend to leave an acid end-product. It is the release and elimination of these very end-products from their storage areas in the body which is the first necessity of genuine cure in almost all forms of sub-health, ill-health and disease of a physical nature.

It follows, then, as a matter of experience in contrast with theoretical assumptions, that a regular daily loss of so much sodium (not to mention the others), which is invaluable to the cells in their struggle to find a 'base' for the stored acids, as the Medical Research Council's Report proves to occur when vegetables are boiled, is a matter of *very considerable* dietetic importance.

Its importance refers not only to the removal of ill-health, but to its prevention. And not only to its prevention, but to the building up of a degree of vitality as desirable as it is rare.

(iii) The Cheshire Testament

The following appeared as part of an editorial article in *Health and Life*, May, 1939.

MANY a time have we pilloried what is called our National Health Insurance, with reasons for so doing. And now the Cheshire Medical and Panel Committee have issued a *Testament* which categorically affirms what we have often said.

"After more than a quarter of a century of Medical Benefit under the National Health Insurance Act," says this Medical Committee, "we feel we are in a position to review our experience of the system.

"Constituted by the statute to represent the panel of an area, such a Committee is in touch with all the family doctors—in the case of Cheshire some 600—within and on its borders.

"How far has the Act fulfilled the object announced in its title—'the Prevention and Cure of Sickness'?

"Of the second item, we can speak with confidence. If 'postponement of the event of death' be evidence of cure, that object has been achieved: the greater expectation of life which is shown by the figures of the Registrar-General is attributable to several factors; but certainly not least to the services of the panel.

"The fall in fatality is all the more notable in view of the rise in sickness. Year by year doctors have been consulted by their patients more and more often, and the claims on the benefit funds of societies have tended to rise.

"Of the first item, 'the Prevention . . . of Sickness' it is not possible to say that the promise of the Bill has been fulfilled. . . On that first and major count the Act has done nothing.

"We feel that the fact should be faced.

"Our daily work brings us repeatedly to the same point: this illness results from a life-time of wrong nutrition!"

This remarkable passage lets the cat—shall we say the Cheshire cat?—out of the bag. The fact that people live longer is due in part to the fact that their symptoms are palliated, but this in turn leads to increasing numbers of sick people. The 'cure' of *diseases* leads to more *disease*, and must continue to do so as long as treatment is directed to symptoms and not to causes. For, as Nature Cure advocates have been saying for half a century, orthodox 'cures' are more often than not the suppression of healing energies. The coffin at forty has given place to the bath-chair at sixty—as a wag has said. That many to-day would prefer the bath-chair to the coffin is only another way of saying what is horribly true: that the very idea of vigorous health and immunity to disease has well-nigh vanished from the minds of millions.

What follows in this truly epoch-making *Testament* is virtually

a whole-hearted endorsement of that linking of Soil, Food and Health which *Health and Life* has so strongly advocated for years past.

It is more than likely that no single member of the Cheshire Panel Committee is a reader of *Health and Life*. That is of little moment. What is of moment is that their minds have been illuminated, chiefly by the scientific work of Sir Robert McCarrison and the agricultural investigations of Sir Albert Howard, with the result that they not only declare that faulty nutrition is the main factor in ill-health and disease, *but that soil-health is the essential condition for healthy nutrition.*

"Though we bear no direct responsibility for such problems, yet the better manuring of the home land so as to bring an ample succession of fresh food crops to the tables of our people, the arrest of the present exhaustion of the soil and the restoration and permanent maintenance of its fertility, concern us very closely. For nutrition and the quality of food are the paramount factors in fitness. No health campaign can succeed unless the materials of which the bodies are built are sound. At present they are not.

"Probably half our work is wasted, since our patients are so fed from the cradle, indeed before the cradle, that they are certain contributions to a C3 nation. Even our country people share the white bread, tinned salmon, dried milk régime. Against this the efforts of the doctor resemble those of Sisiphus.

"This is our medical testament, given to all whom it may concern—and whom does it not concern?

"We are not specialists, nor scientists, nor agriculturists. We represent the family doctors of a great county, the county, said Michael Drayton, of 'such as soundly feed'; a county which gives its name to a cheese than which there is none better, though to most Englishmen, alas, only a name; a county where the best farming is still possible, which should minister to the needs of its own industrial areas and of a wider circle."

Let us note carefully, from the passage just quoted, that these men, some of them with countryside practices, have developed that salutary local patriotism which is one of the prerequisites for true democracy. Every county, even every village, needs to feel its own roots, and develop a steadily increasing degree of local control. The gigantic centralisation of bureaucratic 'government' that has grown up during the past century is not only inefficient and prolific in red tape: it is a danger to national well-being. The so-called democratic countries are suffering severely from this concentration of power, particularly financial power. Their democratic beliefs and aspirations and a certain degree of personal freedom are about all the democracy they actually possess. If they are to jump out of the 'frying-pan' of plutocratic oli-

garchy, in which they now sizzle, and not find themselves in the 'fire' of 'right' of 'left' dictatorship, they must decentralise the powers of both government and finance, and they must regain their traditional roots in soil, cultivation and locality.

To say this is not to stray from the Cheshire *Testament* or the issue it presents: it is to indicate one among several of its far-reaching implications.

A most valuable feature of this *Testament* is an accompanying 28-page pamphlet which gives the sources on which all its leading statements are based. Among these the following quotations from two eighteenth-century sea captains are of special interest.

In 1757 a Captain Lind published *A Treatise on Scurvy*. "Salads of any kind," he wrote 180 years ago, "are beneficial; but especially the mild saponaceous herbs, dandelion, sorrel, endive, lettuce, fumitory, cresses . . ." For medicines in scurvy, he continues, "there is no great occasion, provided the green herbage and fresh broth keep the belly lax." On which it is right to say that the *chief* value of 'green herbage' and 'fresh broth' is now known to be more than that of keeping the belly lax, by which he presumably meant, keeping the bowels open; and the word 'saponaceous' (soap-like) is certainly odd as applied to green salad!

But in the famous, but now seldom read, voyage diaries of Captain James Cook (obtainable in the *Everyman* edition*) there is a still more valuable passage:

"Sour Krout, of which we had a large quantity, is not only a wholesome vegetable food, but in my judgment highly anti-scorbutic, and it spoils not by keeping. . . . By this means, the disease was prevented getting a foothold in the ship." At first the sailors would not eat it, but "the moment they see their superiors set a value upon it, it becomes the finest stuff in the world and the inventor an honest fellow . . ."

While in confirmation of what was said concerning lime-juice in Chapter 11, the following is here quoted:

"The regular use of lemon juice was made compulsory in the Navy in 1804. In the middle of the century West Indian lime juice was unfortunately substituted. In 1876 H.M.S. *Alert* and H.M.S. *Discovery*, Captain Nares, plentifully supplied with lime juice, had much serious scurvy. Miss A. Henderson Smith, *Lancet* 1918, ii 813 and R.A.M.C. Jl. 1929, 32, 93, 188, reviews this blunder."

In the matter of nutrition, the most striking section of the Cheshire Committee's *References* pamphlet is that which gives

**Voyage Towards the South Pole and Round the World, 1772-1775.* (J. M. Dent, London, 2s.)

the experiences of those medical members who had carried their newly gained knowledge into practice among their patients. The *Testament* says: "Results carry complete conviction . . . [we have been] amazed at the benefit conferred upon patients."

The first of these first-hand testimonies relates how the majority of the women in a Cheshire village have been gradually won over to a rational way of feeding, and gives the results, especially as regards pregnancy and the health of children. An essential feature was the reliance on *fresh, local produce*; another was the banning of all processed or patented foods, except yeast extract, and not only was fresh, whole, local food brought into increasing use, but the children were encouraged to go barefoot, "but only a very few of the mothers, so far, are entirely cordial about this."

"When the régime grew up little by little there were a thousand minor difficulties; fruition was slow. But it has now been established long enough for the generation it has fostered to be studied. . . . Perfect sets of teeth are becoming more common. The children are splendid. As infants they sleep as well as could be wished, grow well, are not over-fat, but weigh well and seldom 'ail anything.' Broncho-pneumonia, for instance, is almost unknown amongst them.* One of their striking features is their good humour and happiness. They are sturdy limbed, beautifully skinned, normal children.

"It is not desired to give the impression that the child population of this village is perfect or that complete compliance with the dietary advised is secured . . . but it is a fact that the mothers follow it substantially and with good results. . . . And a number of families seriously cultivate their gardens for growing a succession of saladings."

But quality in food is not merely a matter of eating whole food, fresh food, locally grown food. The soil from which that food comes—either directly as in salads, wheat, vegetables, fruit, or indirectly as in eggs, milk, cheese and meat—can and does vary to a degree that is fully envisaged in this *Cheshire Testament*. Reference is made not only to the great twenty-five years' work of Sir Albert Howard in India, Malaya and Kenya, and now in Britain, but to the remarkable results obtained by Dr. Pfeiffer in Holland and to *The Wheel of Health* by Dr. G. T. Wrench, described truly as "an easily read volume of fascinating interest."

The Cheshire Committee did not stop at putting their conclusions and evidence into print: they organised a public meeting in the Town Hall, Crewe. An audience of about 600 people listened to the *Testament*, and then to Sir Robert McCarrison and Sir Albert Howard, who had been invited to drive home the subjects of Right Nutrition and Soil Fertility.

*Many a reader, to whom the subject is still full of surprises, should note this observed fact. The popular belief is that chest troubles have no connection with faulty eating habits, but are caused by 'germs.'

There is space for but one quotation from the former's speech: "The degenerative diseases* are due to physiological decay of the organ or parts of the body concerned, and of this decay malnutrition is a chief cause. It is preventable only by so adjusting our ways of life—social, economic, agricultural and international—as to ensure for every one a diet that will satisfy physiological needs. No expenditure, however vast, on 'health services,' housing or physical training can ensure national fitness unless and until these needs be satisfied. Their satisfaction is the primary essential of national health. Their satisfaction is the first principle of good government."

These words deserve to make history. Whether the rank and file of the present generation of doctors, the various types of specialists, and the hospitals and nursing homes are capable of the drastic overhauling of theory and practice which Sir Robert McCarrison implicitly demands of them is open to question. The enlightenment of the laity will, let us hope, proceed with increasing momentum. What the people clamour for in sufficient numbers, and with sufficient clarity and vigour, does have its results.

It is impossible to convey in a few words the quality and importance of Sir Albert Howard's speech. Not only was his personal record of how he came to make his discoveries as to the basic method of ridding crops of pests and fungoid diseases a notable example of freely moving native intelligence, but the results and conclusions of his many years' work constitute brilliant and satisfying support of the philosophy of Nature Cure.

*Rheumatism, heart disease, diabetes, kidney disease, stomach and bowel disorders, cancer and mental disease.



SIMPLE AND ATTRACTIVE FOOD REFORM

By EDGAR J. SAXON

with the assistance of MAUD BAINES

**A Straightforward Practical Guide to Healthy Meals
under Present-day Restricted Conditions**

comprising

A Survey of the Existing Food Situation

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How to Balance the Daily Meals

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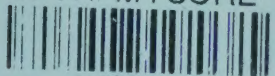
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